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REACTIONS TO TEACHERS BY STUDENTS, PARENTS, AND ADMINISTRATORS.

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THE EFFECTS OF STUDENT REACTIONS TO TEACHERS ON PARENTS' AND ADMINISTRATORS' JUDGEMENT OF TEACHERS AND ON OVERALL TEACHER EFFECTIVENESS WERE STUDIED. IN ADDITION, THE RELATIONSHIP BETWEEN STUDENT ACHIEVEMENT AND TEACHER RATINGS BY ADMINISTRATORS AND STUDENTS WAS EXAMINED WITH RESPECT TO HIGH SCHOOL CHEMISTRY CLASSES. AN ABUNDANCE OF DATA WAS OBTAINED FROM QUESTIONNAIRES COMPLETED BY APPROXIMATELY 1,000 ADMINISTRATORS, PARENTS, TEACHERS, AND STUDENTS. THE FOLLOWING CONCLUSIONS WERE BASED ON THE DATA AS IT WAS PRESENTED--(1) THE IMAGE OF A TEACHER HELD BY STUDENTS USUALLY HAD MUCH IN COMMON WITH THE IMAGE HELD BY ADMINISTRATORS AND PARENTS, (2) THE OPINIONS ONE STUDENT GROUP HELD OF A CERTAIN TEACHER WAS USUALLY VERY SIMILAR TO THOSE OTHER PEER GROUPS HAD, AND INDIVIDUAL TEACHER IMAGES TENDED TO PERSIST IN SUCCEEDING YEARS, AND (3) NO SIGNIFICANT CORRELATION WAS FOUND BETWEEN TEACHER RATINGS OF STUDENTS OR ADMINISTRATORS AND STUDENT GAINS AS FAR AS SUBJECT MATTER LEARNED (SAMPLE CHEMISTRY CLASSES WERE USED FOR THIS STUDY), BUT HIGH CORRELATION WAS FOUND BETWEEN TEACHER PRESTIGE WITH STUDENTS AND DEVELOPMENT OF INTEREST IN AND LIKING FOR THE SUBJECT OF CHEMISTRY. IT WAS RECOMMENDED THAT STUDENT-REACTION REPORTS SHOULD RECEIVE WIDER USAGE IN FUTURE HIGH SCHOOL ACTIVITIES. (JH)

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REACTIONS TO TEACHERS BY STUDENTS, PARENTS AND ADMINISTRATORS

By

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TABLE OF CONTENTS

	PAGE
INTRODUCTION	7
I. TO WHAT EXTENT ARE ADMINISTRATORS' JUDGMENTS OF TEACHERS BASED ON STUDENT REACTIONS?	8
Procedures	8
Replies of Michigan Administrators to Three Questions	10
Replies of Michigan and Out-of-State Administrators to Seven Questions	12
Agreement and Halo Effect in Students' and Administrators' Ratings	16
Conclusions	19
II. TO WHAT EXTENT ARE PARENTS' JUDGMENTS OF TEACHERS BASED ON STUDENT REACTIONS?	20
Procedures	20
Parents' Responses to Three Questions	22
Parents' Replies to Questionnaire Answered at Year End	23
Conclusion	25
III. DO STUDENT OPINIONS OF FORMER TEACHERS CHANGE AS STUDENTS GAIN MATURITY?	26
Procedures	26
How Teachers of High-School Seniors Are Viewed Currently and Two Years Later	27
How Seventh-Grade Teachers Are Viewed by Seventh and Twelfth Graders	30
Conclusions	32
IV. TO WHAT EXTENT MAY THE FEEDBACK OF INFORMATION ABOUT STUDENT REACTIONS IMPROVE TEACHER EFFECTIVENESS?	32
Procedures	32
Reliability and Halo Effect Present in Student Reactions	36
Method of Determining Significant Gains and Losses	38
Comparison of Gains and Losses in Experimental and Control Groups	40
Teachers' Appraisal of the Value of Student-Reaction Feedback	43
Conclusion	43
V. WHAT IS THE RELATIONSHIP BETWEEN ACHIEVEMENT OF HIGH SCHOOL CHEMISTRY CLASSES AND RATINGS OF TEACHERS BY ADMINISTRATORS AND BY STUDENTS?	44
Procedures	44
Reliability of Raw and Adjusted Chemistry Scores	45
Correlation of Ratings with Raw and Adjusted Chemistry Scores	46
Relationship Between Students' Opinion of Teachers and Attitude Toward Chemistry	47
Summary of Findings and Conclusions	48
CONCLUSIONS AND RECOMMENDATIONS	49
BIBLIOGRAPHY	50
APPENDIX	51

LIST OF TABLES

TABLE		PAGE
I	Thirty-two Administrators Identify Judgment-forming Factors and Sources of Information on Same	11
II	Some Teacher Qualities That Can Be Judged Better by Students Than by Administrators	12
III	Degree to Which Administrators' Opinions of Teachers Are Influenced or Determined by Each of the Named Sources of Information	13
IV	Extent to Which Students' Opinions of Teachers Are Communicated to Administrators Through the Means Listed	14
V	Percentage of Administrators in Two Groups Who Agreed with Each of Ten Statements	15
VI	Opinions Expressed by One Administrator and by One Class of Students About One Teacher	16
VII	Coefficients (Accompanied by Intercorrelation Coefficients) Showing Agreement Between Administrators	17
VIII	Coefficients (Accompanied by Intercorrelation Coefficients) Showing Agreement Between Student Groups	18
IX	Coefficients Indicating Agreement Between Students and Administrators, Between Administrators, and Among Students	19
X	Distribution by Schools and Grade Level of Teachers of Children Whose Parents Answered Questionnaire	20
XI	Degree to Which Parents' Opinions of Teachers Are Influenced by Named Factors	22
XII	Extent to Which Children's Opinions of Teachers Are Communicated to Parents Through the Named Means	22
XIII	Degree to Which Parents' Opinions of a Teacher Are Based on the Reactions of Their Children to the Teacher	23
XIV	Parents' Response to Four Statements When Asked to Choose the Appropriate Answer	23
XV	Fifty Parents Identify Judgment-forming Factors and Sources of Information on Same	24
XVI	How 128 Parents Answered Three Questions	25
XVII	Parents' Opinion of Teacher's Success in Promoting Learning Correlated with Other Factors	25
XVIII	Opinions of One Teacher Expressed by Students When High School Seniors and When College Sophomores	27

XX Significant Differences Between the Reactions to 40 Teachers by Students When Seniors in High School and Sophomores in College 28

XXI Reactions to Mr. Smith by 43 High School Seniors and by 26 of These Same Students Two Years Later 29

XXII Reactions to One Teacher by Seventh-graders and by Twelfth Graders Who Recorded Opinions in Retrospect 30

XXIII Reactions by Seventh Graders to 32 Teachers Compared to Reactions by Former Students (Twelfth Graders Who Recorded Opinions in Restrospect) 31

XXIV Graphed Averages Obtained from the Reactions of Students in Three Classes Taught by Teacher X . . . . . 33 & 34

XXV Information About Teachers in the Experimental and Control Groups 35

XXVI Student Reactions to Two Teachers on Ten Questions Shown Graphically 36

XXVII Coefficients (Accompanied by Intercorrelation Coefficients) Showing Agreement Among Students 37

XXVIII Method of Determining the Statistical Significance of Gains and Losses Made by Teacher X . . . . . 38 & 39

XXIX Size of t Scores for All Significant (.01 Level) Gains and Losses by 60 Experimental and 59 Control Teachers 40

XXX Percentage of Teachers in the Experimental and Control Groups Who Made Significant (.01 Level) Gains or Losses on One or More Questions 41

XXXI Gains and Losses by Experimental and Control Teachers Classified According to Years of Teaching Experience 42

XXXII Gains and Losses by Experimental and Control Teachers Classified According to Prestige at Beginning of Study 42

XXXIII Adjusted Chemistry Test Scores and Ratings Received by Eight Teachers 46

XXXIV Coefficients Showing the Correlation Between Chemistry Scores and Ratings by Administrators and Students 47

XXXV Previously Reported Correlation Coefficients Obtained from Data Concerning 38 Chemistry Teachers 48

XXXVI Correlation Coefficients (Accompanied by Intercorrelation Coefficients) Showing Agreement Among Pupils in Grades 4, 5 and 6 58

INTRODUCTION

This is a report on a study of several aspects of student reactions to teachers. The motivation for the study grew during the many years that the investigator served as administrator in elementary and secondary schools. To him it appears impossible to work with students and their parents and teachers without being impressed with the important role that student reactions play in determining estimates of teacher success. Also, the motivation for this study has been strengthened by the growing body of literature on the measurement of student reactions to teachers. It has been demonstrated repeatedly that students can give reliable reports on their opinions of the effects that teachers have on them. Educators have only begun to capitalize on this fact as a means of learning more about effective teacher behavior.

Five questions studied serve as headings of five chapters of this report. The data for four of the five chapters were obtained from secondary schools (grades 7-12). The data for Chapter II were obtained from parents of pupils in elementary and secondary schools. The five questions, together with comments about their implications, are these:

1. To what extent are administrators' judgments of teachers based on student reactions? Student reactions to teachers are important if administrators' judgments of teachers are influenced by student reactions. Administrators of necessity constantly judge teachers and these judgments affect teacher assignments and promotions.

2. To what extent are parents' judgments of teachers based on student reactions? What parents think of teachers is important. Some parents have made widely-distributed attacks on education. Their criticisms have often been based on observations of the effects teachers have on their children. A teacher who is held in low regard by parents is certainly no asset in the public-relations program of a school.

3. Do student opinions of former teachers change as students gain maturity? Do high school seniors and college sophomores differ in their opinions of the same teachers? Do seventh grade pupils and high school seniors differ in their opinions of the same teachers? These questions have special significance to those teachers who say in effect, "The present immature and prejudiced opinions of my students are of little importance to me in comparison with the opinions they will hold after they have gained maturity." If student reactions are stable and persistent rather than unstable and changeable, their significance is greater in other respects also.

4. To what extent may the feedback of information about student reactions improve teacher effectiveness? In other words, to what extent can improvements in teacher effectiveness as judged by students be brought about through the use of written student reactions? Many educators believe that improved student reactions mean improved teacher effectiveness. The research by Ryans and others[1] led to the conclusion that effective teachers exhibit to a favorable degree, qualities like those specified in the student-opinion questionnaire used in the present study. This means, for example, other things being equal, that the teacher whose explanations are clear to students is more effective than the one whose explanations are unclear.

5. What is the relationship between achievement of high school chemistry classes and ratings of teachers by administrators and by students? Chemistry classes were chosen for the study because the subject matter is as well standardized as that in any area and because this subject matter is rarely treated to a significant degree by previous teachers, certainly not to the degree that obtains in the fields of English and history, for example. Ideally, teacher competence should be reflected in student growth as measured by reliable tests. Theoretically, high test scores should be positively related to high teacher ratings by students and administrators.

---

[1] David G. Ryans, **Characteristics of Teachers.** American Council on Education, 1960, p. 82.

CHAPTER I

TO WHAT EXTENT ARE ADMINISTRATORS' JUDGMENTS OF TEACHERS BASED ON STUDENT REACTIONS?

The purpose of this chapter is to report the extent to which administrators' judgments of high school teachers are based on student reactions. This purpose is served in these three steps or ways: (1) a report on Michigan administrators' replies to several questions, (2) a report of answers to a series of questions by two groups of administrators —Michigan administrators and a group of out-of-state administrators, and (3) a comparison of administrators' and students' ratings of 38 high school teachers (grades 7-12).

Procedures

The first step called for 32 Michigan administrators' replies to three questions. (Other questions they were asked to answer will be reported under the second step.) The instructions given are found in the following letter:

> We should like to have the cooperation of two high school administrators in each of 15 schools to assist us during the current school year in seeking an answer to the question, By what means do administrators usually arrive at conclusions concerning the merit of teachers? One aspect of the question that we desire to explore with special care is the extent to which administrators' opinions of teachers are influenced by student opinions.
>
> Following are the things that each of the participating administrators will be asked to do during the course of the school year:
>
> 1. Answer a questionnaire sometime in September.
> 2. Keep a record of one high school teacher who is new to the staff this year. Both administrators should keep a record of the same teacher. This record will consist of the following parts:
>
> A. A rating of this teacher in September on a form which we shall provide. This rating would represent impressions based on information which led to the employment of the teacher.
>
> B. During the course of the year, keep a record or "diary" of comments by parents, students and teachers which come to you either directly or indirectly. The "diary" should also contain brief references to observations of the teacher when working with students and when in faculty meetings, conferences, and other social situations. Under this procedure, the administrator would simply make notes on his observations and on comments by others that come to him in the normal course of events. We want him to make no special effort not normally made with reference to all new teachers.
>
> C. At the end of the school year, rate this teacher again using the same rating form used at the beginning of the year.
>
> 3. Fill in a final questionnaire at the end of the school year. This will be the same questionnaire answered at the beginning of the study along with a few new questions.

Of the administrators in Michigan who volunteered to participate in the study, 32 met all of the conditions specified. These 32 included 10 superintendents, 18 principals, 2 assistant principals, and 2 directors of secondary education.

Following are the three questions answered by these 32 administrators:

> 1. List the kinds of things you saw or heard that either confirmed your first evaluation or brought about a change. (If your opinion of this new teacher is more favorable now than it was at the beginning of the year, what things happened to cause the change? If your opinion is less favorable, why? If your first opinion of this teacher has been confirmed rather than changed, please specify the kinds of information that helped to confirm your original opinion.) Feel free to point to success or failure in any aspect of teaching, in any extracurricular activity, or in relationships with any persons or groups. List not only the kinds of happenings that influenced you, but also specify how information about these happenings reached you. Was it through direct observation? Through students? Through parents or board-of-education members? Through reports of an assistant or any staff member? Use the reverse side of this sheet if you need more space for your answer.
>
> 2. Approximately how many times did you visit the classroom of this teacher and remain to observe his or her teaching? _____ Approximately how many minutes did the typical observation last? _____
>
> 3. Do you ordinarily spend more or less time in the classroom of a first-year teacher than in the classrooms of teachers who are not new to the school? Underline your answer: More Less
> Comment if any _____

The second procedural step consisted in getting questionnaire replies from the same 32 Michigan administrators discussed above and from 47 out-of-state administrators. The 47 out-of-state administrators were located in these states: Illinois 14, Iowa 12, Minnesota 6, Wisconsin 5, Indiana 4, Missouri 4, and Ohio 2. Their title classifications are: 5 superintendents, 5 assistant superintendents, 18 principals, 7 assistant principals, 4 department heads, and 8 guidance directors. They were given no instructions other than a request to answer the questionnaire that follows.

The purpose of this questionnaire is to get your opinions concerning the sources of information on which you base your judgments of teacher merit. We are concerned primarily with those things about a teacher's performance (and your sources of information about performance) which cause you to decide how successful a teacher is in working with students.

Please answer the following questions:

1. Suppose that an administrator has given a teacher a low rating on performance in conducting lively and interesting classes. Suppose also that the use of a reliable student-opinion questionnaire showed that the students of this teacher agree that his classes are lively and interesting. How would you explain this disagreement between students and the administrator? Encircle the letter in front of your answer:

a. Mistaken judgment on the part of the administrator because of the inadequate information.
b. Mistaken judgment on the part of students.
c. Other _____

2. Suppose that a superintendent of schools wanted to get highly reliable evaluations of the merit of the secondary-school teachers in his school system. Suppose that he has available in file for each teacher (1) Ratings made by the principal and (2) Student-opinion questionnaire results from the classrooms of each teacher.

Assume that he has little acquaintance with the work of these teachers. Which of the following do you think would give him the most reliable evaluation of these teachers? Encircle the letter in front of your answer.

a. Ratings by the principal
b. Student-opinion questionnaire summaries
c. A combination of both "a" and "b"

3. Would you knowingly recommend for employment in your school an experienced teacher who had failed to gain the respect and confidence of most students in his previous teaching assignment? Encircle your answer: No. Yes. Undecided.

4. Are *secondary-school* ***administrators*** *or secondary-school* **students** in a better position to make reliable judgments concerning the degree to which a teacher exhibits each of the following qualities as he works with students. Here the term "students" means the students who are members of a teacher's classes. Encircle your answer.

A=Administrators, S=Students, U=Undecided.

a. Fairness	A.	S.	U.
b. Friendliness	A.	S.	U.
c. Ability to explain clearly	A.	S.	U.
d. Sympathetic understanding	A.	S.	U.
e. Ability to stimulate interest	A.	S.	U.
f. All-round teaching ability	A.	S.	U.
g. Sense of humor	A.	S.	U.
h. Enthusiasm for the subject and for teaching	A.	S.	U.
i. Emotional balance	A.	S.	U.
j. Discipline	A.	S.	U.

5. To what degree are your opinions of teachers influenced or determined by each of the following sources? Add to the suggested answers (if you have additions); then underline one answer for each source.

a. Test results: High Moderate Low
b. Observations made in the classroom: High Moderate Low
c. Observation of student behavior and attitudes which reflect the kind of influences the teacher has on students: High Moderate Low
d. Comments by parents (including board-of-educations members): High Moderate Low
e. Comments by students High Moderate Low
f. Comments by other staff members (administrators, counselors, teachers):
g. Other _____ High Moderate Low

6. To what extent are students' opinions of teachers communicated to you through the means listed below? Encircle the response that you consider appropriate.

G=Great, M=Moderate, L=Little, N=None

a. Comments by parents G. M. L. N.
b. Comments by students which reach you either directly or indirectly through others G. M. L. N.
c. Direct observation of student behavior and attitudes which reflect the kind of influence a teacher has on students. G. M. L. N.
d. Comments by other staff members (counselors, fellow administrators, office help or others). G. M. L. N.
e. Comments by board-of-education members: G. M. L. N.
f. Other _____ G. M. L. N.

7. Please respond to each of the following statements by encircling the appropriate answer:

A=Agree, D=Disagree, U=Undecided.

a. The primary criterion of teacher merit is the ability of the teacher to have desirable effects on students. A. D. U.
b. If pupils agree that a teacher is unfair to them, they may be correct or they may be incorrect. They may feel that way because they failed to place the proper interpretation on the procedures used. Such an unfavorable opinion, whether correct or incorrect, would tend to block the full effectiveness of the teacher. A. D. U.
c. If pupils agree that a teacher is unfriendly and unsympathetic, their opinion is more valid than that of an administrator or supervisor who may think that the teacher is friendly and sympathetic to students. A. D. U.
d. The teacher who works effectively with young

people is not the kind who allows misunderstandings to flourish.

A. D. U.

e. Many of my opinions of a teacher are based, to a great extent, on the reactions of students to that teacher.

A. D. U.

f. Unhappy, critical, and resentful students are poor public-relations agents in the community.

A. D. U.

g. Few administrators who have worked long with students and their parents will question the assertion that parents' opinions of the worth of teachers are based largely on the reports that students take home.

A. D. U.

h. The teacher who is held in high regard by students is likely to be held in high regard by parents, and thereby makes a contribution to good school-community relations.

A. D. U.

i. A secondary school principal who is well informed on the reactions of students to a teacher is better prepared to evaluate the merit of that teacher than a principal who is not well informed on the reactions of students to that teacher.

A. D. U.

j. Systematic evaluation of the opinions of all students by means of an opinion questionnaire can give the administrator a more reliable basis for judging the effects a teacher is having on students than student opinions and indications that come to the administrator through unsystematic means.

A. D. U.

The third procedural step consisted in getting administrators' and students' ratings of 38 chemistry teachers in 38 schools (one teacher per school). Two administrators and two classes of students in each school rated each teacher. This means that ratings were received from 76 administrators and 76 classes of students. These classes ranged in size from 12 to 30, the average being 21 students. These 76 administrators included the 47 out-of-state administrators discussed previously.

Both administrators and students used the same questionnaire when recording their opinions of these 38 chemistry teachers. (See copy in appendix, pages 53 and 54.) For the questions in this questionnaire, the reliability coefficients range from .76 $\pm$ .06 to .85 $\pm$ .04 when chance-half averages for 50 classes (50 teachers) are correlated. These coefficients represent the reliability of chance-half groups which range in size from 12 to 20 students, the average being 14. The reliability coefficients for the combined halves (28 students), as determined by use of the Spearman-Brown prophecy formula, range from .86 $\pm$ .04 to .93 $\pm$ .02.

The results of these three steps in procedure will be presented in order under the next three headings.

Replies of Michigan Administrators to Three Questions

Presented below are the replies by 32 Michigan administrators to the three questions listed on page 8.

1. Concerning one new teacher, each administrator reported one or more factors (judgment-forming factors) that either enhanced or lowered his opinion of that teacher. Also he reported his source of information about the factor. One administrator whose initial impression of a new teacher became less favorable during the year said, "Students complained to parents and to us that they have been learning very little. I visited the classroom briefly. The room was out of order. The discipline was poor. The teacher tends to blame students." One administrator whose opinions of the new teacher improved during the year said, "I have been pleased with his willingness to spend extra hours that make for better teaching and a better school. He takes the groups on field trips on Saturdays. He stays after school to help students who desire help. My sources of information are personal observation and comments by students."

Table I, on the following page, summarizes the factors that influenced these administrators' judgments and indicates their sources of information. In order of frequency of mention, their sources of information are (1) personal observation, (2) students, (3) parents, (4) staff members and (5) tests. "Personal observation" includes observations made both in and outside the classrooms, judging by the comments made by these administrators.

2. In response to the question concerning the number of times the administrator visited the new teacher on whom he was keeping a "diary," 17, or 53 per cent, said they visited three times or less during the school year. Twenty administrators, or 62 percent, said that the typical visit lasted less than 20 minutes. Only 6, or 19 percent, said that visits lasted more than 30 minutes.

3. More than 90 per cent of these 32 administrators indicated that even less time was spent in the classrooms of teachers not new to the school. The time spent in classroom visitation went largely to first-year teachers.

These replies indicate that most of these administrators spent relatively little time observing teachers at work in the classroom. One administrator volunteered the comment, "Even though my visits are few and short, they permit me to 'sense' the room atmosphere—the presence or absence of student purpose, interest, enthusiasm, cooperation, etc."

TABLE I

THIRTY-TWO ADMINISTRATORS IDENTIFY JUDGMENT-FORMING FACTORS AND SOURCES OF INFORMATION ON SAME

Judgment-Forming Factors	Sources of Information				
	Personal Observation	Students	Parents	Staff Members	Tests
1. Enthusiastic response from students	3	2		1	
2. Good job of helping students gain mastery of subject	3	4	3		2
3. Keeps students interested and under control	5	4	4	3	
4. Has enthusiasm for teaching		1	1	1	
5. Ability to explain clearly		1	1		
6. Excellent job of counselling new students	1	1	1		
7. Conducts good homerooms	1	1			
8. Spends extra hours in extracurricular activities	3	2		1	
9. Profits by constructive criticism	2				
10. Good support of school, other staff members, and administrators	1			1	
11. Good use of school library				1	
12. Pride in personal and room appearance	1				
13. Impressed by opinions expressed in personal conversation	1				
14. Excellent open-house exhibit	1				
15. Sponsors superior school paper	1				
16. Radiates optimism	1				
17. Enjoys attending school parties and functions	1				
18. Promptness in meeting all scheduled obligations	1				
19. Contributions at faculty meetings	1				
20. Excellent job of managing concession stand at games	1				
TOTALS	28	16	10	8	2

Interpret as follows: Success or failure in getting "enthusiastic response from students" was listed as a judgment-forming factor (something seen or heard that confirmed, improved or lowered opinions of a teacher). The source of information on this factor was listed as "personal observation" by three administrators, as "students" by two, and as "other staff members" by one administrator. Any one administrator may have listed more than one source of information.

Replies of Michigan and Out-of-State Administrators To Seven Questions

Following are the replies of 32 Michigan and 47 out-of-state administrators to the seven questions listed on page 9.

1. In response to the first question, 75 of the 79 administrators (two groups combined) said that if students agree that a class is interesting to them, their opinions must be accepted as valid, and a conflicting opinion of an administrator would be invalid.

2. In response to the second question, 72 of the 79 administrators indicated a belief that a combination of the principal's ratings and student-opinion questionnaire summaries would permit a more reliable evaluation of teachers than either source alone.

3. More than three-fourths of the administrators in both groups said that they would not recommend for employment a teacher who had failed to gain the respect of students in his previous teaching assignment. Those who indicated indecision, or said that such a teacher would be recommended, added explanations like this one, "If I had reason to believe that this failure would not be repeated."

4. Table II below shows the great majority of both groups of administrators agreed that students are in a better position than administrators to make reliable judgments on the degree to which a teacher possesses most of the qualities listed.

TABLE II

SOME TEACHER QUALITIES THAT CAN BE JUDGED BETTER BY STUDENTS THAN BY ADMINISTRATORS

Qualities	Number and Percent	Michigan Administrators				Out-of-State Administrators			
		A	S	U	T	A	S	U	T
a. Fairness	Number	5	24	3	32	15	31	1	47
	Percent	16	75	9	100	32	66	2	100
b. Friendliness	Number	4	26	2	32	6	40	1	47
	Percent	12	81	6	99	13	85	2	100
c. Ability to explain	Number	3	29	0	32	6	41	0	47
	Percent	9	91	0	100	13	87	0	100
d. Sympathetic understanding	Number	4	26	2	32	13	33	1	47
	Percent	12	81	6	99	28	70	2	100
e. Ability to stimulate interest	Number	6	22	4	32	19	28	0	47
	Percent	19	69	12	100	40	60	0	100
f. All-round teaching ability	Number	23	4	5	32	39	8	0	47
	Percent	72	12	16	100	83	17	0	100
g. Sense of humor	Number	2	27	3	32	5	40	2	47
	Percent	6	84	9	99	11	85	4	100
h. Enthusiasm for subject and for teaching	Number	13	10	9	32	28	18	1	47
	Percent	40	31	28	99	60	38	2	100
i. Emotional balance	Number	21	3	8	32	23	20	4	47
	Percent	66	9	25	100	49	43	8	100
j. Discipline	Number	25	5	2	32	33	13	1	47
	Percent	78	16	6	100	70	28	2	100

Key: A=Administrators, S=Students, U=Undecided, T=Total

This table should be interpreted as follows: Five of the 32 Michigan administrators, or 16 percent, indicated that administrators are in a better position than students to make reliable judgments on "fairness"; 24 administrators, or 75 percent, indicated that students are in a better position than administrators to make reliable judgments on "fairness"; and the remaining three administrators, or 9 percent, were undecided.

5. The replies reported in Table III below show that more than three-fourths of both groups of administrators said that their opinions of teachers were influenced to a "high degree" by "observations of student behavior and attitudes which reflect the kind of influence the teacher has on students."

TABLE III

DEGREE TO WHICH ADMINISTRATORS' OPINIONS OF TEACHERS ARE INFLUENCED OR DETERMINED BY EACH OF THE NAMED SOURCES OF INFORMATION

Hi.=High, Mo.=Moderate, Lo.=Low, Tot.=Total

Sources	Number and Percent	Administrators							
		Michigan				Out-of-State			
		Hi.	Mo.	Lo.	Tot.	Hi.	Mo.	Lo.	Tot.
Test results	Number	1	15	16	32	3	27	17	47
	Percent	3	47	50	100	6	57	36	99
Observations made in the classroom	Number	21	10	1	32	29	17	1	47
	Percent	66	31	3	100	62	36	2	100
Observations of student behavior and attitudes which reflect the kind of influence the teacher has on students	Number	27	5	0	32	40	6	1	47
	Percent	84	16	0	100	85	13	2	100
Comments by parents	Number	2	26	4	32	8	27	12	47
	Percent	6	81	13	100	17	57	26	100
Comments by students	Number	10	22	0	32	10	29	8	47
	Percent	31	69	0	100	21	62	17	100
Comments by other staff members (administrators, counselors or teachers)	Number	10	22	0	32	14	33	0	47
	Percent	31	69	0	100	30	70	0	100

This table should be interpreted as follows: One of the 32 Michigan administrators (three percent) said that test results influenced his opinions of teachers to a "high" degree; 15, or 47 percent, indicated that test results influenced their opinions of teachers to a "moderate" degree; and 16, or 50 percent, indicated that test results influenced their opinions to a "low" degree.

6. In Table IV on this page are the replies to the question concerning how student reactions to teachers are communicated to administrators. The great majority of both groups listed "direct observation of student behavior and attitudes" first. Both groups placed means "b" and "d" (students and other staff members) next in importance. One administrator said, "What one teacher thinks of the teaching ability of another is usually a reflection of student opinion because he never sees a colleague perform in the classroom."

TABLE IV

EXTENT TO WHICH STUDENTS' OPINIONS OF TEACHERS ARE COMMUNICATED TO ADMINISTRATORS THROUGH THE MEANS LISTED

G=Great, M=Moderate, L=Little, N=None, T=Total

Means	Number & Percent	Michigan Administrators					Out-of-State Administrators				
		G	M	L	N	T	G	M	L	N	T
a. Comments by parents	Number	1	16	15	0	32	2	22	21	2	47
	Percent	3	50	47	0	100	4	47	45	4	100
b. Comments by student which reach you either directly or indirectly through others	Number	9	12	10	1	32	10	22	14	1	47
	Percent	28	37	31	3	99	21	47	30	2	100
c. Direct observation of student behavior and attitudes which reflect the kind of influence teachers have on students	Number	19	10	3	0	32	34	11	2	0	47
	Percent	59	31	9	0	99	72	23	4	0	99
d. Comments by other staff members (counselor, fellow administrators, office help or others)	Number	7	23	2	0	32	12	30	5	0	47
	Percent	22	72	6	0	100	25	64	11	0	100
e. Comments by board-of-education members	Number	0	10	20	2	32	1	10	20	16	47
	Percent	0	31	63	6	100	2	21	43	34	100

This table should be interpreted as follows: One of the 32 Michigan administrators indicated that students' opinions of teachers are communicated to him to a "great" extent through comments by parents; 16, or 50 percent, said that students' opinions are communicated in this manner to a "moderate" extent; 15, or 47 percent, selected the answer, "little."

7. Table V on this page indicates the percentage of administrators in both groups who agreed with each of ten statements. It will be observed that the great majority of administrators in both groups agreed with 9 out of 10 of these statements. Also, it will be observed that in nine out of ten instances a greater percentage of Michigan than out-of-state administrators agreed with the statement. The difference is marked with reference to several. One likely explanation is the fact that the Michigan administrators had been called upon to examine these issues closely during the course of one year.

TABLE V

PERCENTAGE OF ADMINISTRATORS IN TWO GROUPS WHO AGREED WITH EACH OF TEN STATEMENTS

Statement	Michigan Administrators		Out-of-State Administrators	
	Agree	Disagree	Agree	Disagree
a. The primary criterion of teacher merit is the ability of the teacher to have desirable effects on students.	97	3	89	11
b. If pupils agree that a teacher is unfair to them, they may be correct or they may be incorrect. They may feel that way because they failed to place the proper interpretation on the procedures used. Such an unfavorable opinion, whether correct or incorrect, would tend to block the full effectiveness of the teacher.	94	6	85	15
c. If pupils agree that a teacher is unfriendly and unsympathetic, their opinion is more valid than that of an administrator or supervisor who may think that the teacher is friendly and sympathetic to students.	50	50	45	55
d. The teacher who works effectively with young people is not the kind who allows misunderstandings to flourish.	100	0	94	6
e. Many of my opinions of a teacher are based, to a great extent, on the reactions of students to that teacher.	78	22	74	26
f. Unhappy, critical, and resentful students are poor public relations agents in the community.	91	9	100	0
g. Few administrators who have worked long with students and their parents will question the assertion that parents' opinions of the worth of teachers are based largely on the reports that students take home.	94	6	81	19
h. The teacher who is held in high regard by students is likely to be held in high regard by parents, and thereby makes a contribution to good school-community relations.	97	3	96	4
i. A secondary school principal who is well informed on the reactions of students to a teacher is better prepared to evaluate the merit of that teacher than a principal who is not well informed on the reactions of students to that teacher.	97	3	98	2
j. Systematic evaluation of the opinions of all students by means of an opinion questionnaire can give the administrator a more reliable basis for judging the effects a teacher is having on students than student opinions and indications that come to administrators through unsystematic means.	81	19	60	40

Agreement and Halo Effect in Students' and Administrators' Ratings

Table VI on this page reports graphically the opinions expressed by one administrator and one class of students in response to the same ten questions about one teacher. When similar mean ratings of 38 teachers (two classes of students vs. two administrators per teacher) were correlated, the following coefficients were obtained: question 1—.59 ± .10, 2—.72 ± .08, 3—.76 ± .07, 4—.68 ± .09, 5—.65 ± .09, 6—.74 ± .07, 7—.61 ± .10, 8—.78 ± .06, 9—.64 ±.10, 10—.68 ± .09. These coefficients indicate considerable agreement between administrators and students. The questionnaire used is shown on pages 53 and 54.

TABLE VI
OPINIONS EXPRESSED BY ONE ADMINISTRATOR AND BY ONE CLASS OF STUDENTS ABOUT ONE TEACHER

A=Administrators, S=Students

SCALE STEPS	SCALE AVERAGE		QUESTIONS 1	2	3	4	5	6	7	8	9	10
The Very Best	1.0	100				A	A		A			A
	1.1	99							S			
	1.2	98										
	1.3	97										
	1.4	96										
	1.5	95										
	1.6	94										
	1.7	93				S						
	1.8	92										
	1.9	91	S									
Very Good	2.0	90	A		A			A			A	
	2.1	89										
	2.2	88								S		
	2.3	87										
	2.4	86		S	S						S	S
	2.5	85										
	2.6	84										
	2.7	83					S					
	2.8	82										
	2.9	81						S				
Good	3.0	80		A								
	3.1	79										
	3.2	78										
	3.3	77										
	3.4	76										
	3.5	75										
	3.6	74										
	3.7	73										
	3.8	72										
	3.9	71										
Average	4.0	70										
	4.1	69										
	4.2	68										
	4.3	67										
	4.4	66										
	4.5	65										
	4.6	64										
	4.7	63										
	4.8	62										
	4.9	61										
Below Average	5.0	60										

Key to questions:

1. Knowledge of subject
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business like
9. Think
10. General ability

This table may be interpreted as follows: On question 1 (knowledge of subject) the rating by one administrator and the average of the ratings by one class numbering 21 students are in close agreement—2.0 and 1.9 respectively. These are the numerical ratings that result when the top step on the scale is arbitrarily assigned the value "1" and the bottom step is assigned the value "5." The numerical ratings, 90 and 91, result when the top step on the scale is arbitrarily assigned the value "100" and the bottom step is assigned the value "60."

On question 2 (ability to explain clearly) the students expressed a more favorable opinion (2.4 or 86) than did the administrator (3.0 or 80).

Table VII on this page contains data showing the extent of agreement between administrators. The coefficients range from .49 to .77, the average being .68.

The average of the ninety intercorrelation coefficients is .58, or ten points lower than .68. These "averages" were computed by transforming the r's into Fisher's z function and obtaining the arithmetic mean of the z's and then converting the mean z into an equivalent r, as recommended by Garrett and Woodworth[1].

TABLE VII

COEFFICIENTS (ACCOMPANIED BY INTERCORRELATION COFFICIENTS) SHOWING AGREEMENT BETWEEN ADMINISTRATORS

Questions	1	2	3	4	5	6	7	8	9	10
1	.69									
2	.52 .57	.70								
3	.46 .33	.56 .46	.49							
4	.43 .37	.73 .64	.39 .45	.77						
5	.45 .35	.50 .35	.58 .44	.55 .37	.59					
6	.60 .58	.66 .73	.42 .47	.59 .61	.36 .52	.66				
7	.41 .63	.67 .73	.40 .61	.57 .76	.36 .54	.54 .72	.77			
8	.58 .52	.63 .67	.43 .41	.58 .64	.37 .53	.71 .66	.71 .54	.71		
9	.65 .51	.66 .60	.48 .58	.53 .64	.48 .49	.66 .60	.74 .60	.59 .62	.67	
10	.54 .60	.78 .71	.55 .62	.68 .71	.40 .62	.69 .68	.78 .67	.74 .68	.63 .75	.75

Key to questions:

1. Knowledge of subject
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business like
9. Ability to get students to think
10. General ability

Interpret as follows: 69, in cell 1-1, is the coefficient produced by correlating pairs of ratings by administrators of 38 teachers on question 1. In cell 2-2 is the corresponding figure (.70) for question 2. In cell 1-2 are the two intercorrelation coefficients (52 and 57) that result when the pairs of ratings back of cells 1-1 and 2-2 are rearranged into a 1-2 and 2-1 pattern (ratings on question 1 are correlated with ratings on question 2).

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[1] H. E. Garrett and R. S. Woodworth, **Statistics in Psychology and Education.** New York: Longmans, Green and Co., 1958, p. 173.

Table VIII on this page shows that the agreement between student groups or classes is represented by coefficients that range from .68 to .88 on the different questions, the "average" being .80. The average of the ninety intercorrelation coefficients on this page is .61, or 19 points lower than .80.

On the previous page are reported data from administrators which show that the average intercorrelation coefficient is 10 points lower than the average agreement or reliability coefficient. (Also, the method used to compute an "average" is explained.) This means that for students the "spread" between agreement and intercorrelation cofficients is much greater than for administrators. This indicates that students were influenced less by "halo" than were administrators. That is, students' ratings on the individual items were less influenced by their general impression of the teacher than were administrators' ratings.

TABLE VIII

COEFFICIENTS (ACCOMPANIED BY INTERCORRELATION COEFFICIENTS) SHOWING AGREEMENT BETWEEN STUDENT GROUPS

Questions	1	2	3	4	5	6	7	8	9	10
1	.68									
2	.53 .55	.77								
3	.42 .43	.68 .61	.85							
4	.53 .48	.64 .57	.50 .62	.85						
5	.22 .37	.50 .45	.64 .72	.40 .20	.70					
6	.57 .55	.71 .64	.50 .56	.64 .64	.31 .39	.70				
7	.56 .66	.72 .70	.55 .67	.51 .59	.55 .61	.62 .68	.88			
8	.63 .58	.69 .72	.54 .65	.70 .74	.26 .45	.62 .77	.62 .59	.84		
9	.54 .57	.67 .60	.54 .66	.73 .72	.36 .51	.71 .68	.71 .55	.73 .58	.79	
10	.57 .60	.74 .75	.66 .74	.67 .66	.44 .57	.68 .71	.74 .70	.78 .76	.70 .74	.81

Key to questions:

1. Knowledge of subject
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business like
9. Ability to get students to think
10. General ability

Interpret as follows: The 68, in cell 1-1, is the coefficient produced by correlating 38 pairs (two classes per teacher) of averages on question 1, each average being the mean of the ratings by students in one class. In cell 2-2 is 77, the corresponding coefficient for question 2. The 53 and 55 in cell 1-2 are the two intercorrelation coefficients (averages on question 1 correlated with averages on question 2).

In Table IX on this page are reproduced the agreement cofficients presented previously. The data in this table support the following conclusions:

1. The first horizontal column shows that there is a substantial amount of agreement between administrators and students in opinions expressed concerning 38 teachers.

2. A comparison of the coefficients in the first and second horizontal columns shows that, on most items in the questionnaire, administrators agree as well with students as they agree with each other.

3. A comparison of the data in the second and third horizontal columns shows that the agreement between student groups is higher than the agreement between administrators.

TABLE IX

COEFFICIENTS INDICATING AGREEMENT BETWEEN STUDENTS AND ADMINISTRATORS, BETWEEN ADMINISTRATORS, AND AMONG STUDENTS

Groups		Questions 1	2	3	4	5	6	7	8	9	10	"Average"
Students with Administrators	r	.59	.72	.76	.68	.65	.74	.61	.78	.64	.68	.69
	s.d.	.10	.08	.07	.09	.09	.07	.10	.06	.10	.09	.08
Administrators with Administrators	r	.69	.70	.49	.77	.59	.66	.77	.71	.67	.75	.68
	s.d	.08	.08	.12	.07	.10	.09	.07	.08	.09	.07	.09
Students with Students	r	.68	.77	.85	.85	.70	.70	.88	.84	.79	.81	.80
	s.d.	.09	.07	.05	.05	.08	.08	.04	.05	.06	.06	.06

Key to questions:

1. Knowledge of subject
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business-like
9. Think
10. General ability

Interpret as follows: The coefficient .59 on question 1, first horizontal column (accompanied by its standard deviation of .10), was obtained by correlating the mean of two administrators' ratings with the mean of ratings by two classes of students for each of 38 teachers. Each "average" was computed as explained previously on page 17.

Summary of Conclusions

The responses by 32 Michigan and 47 out-of-state administrators to a series of questions show that their judgments of teachers are based to a very great extent on student reactions to teachers.

A comparison of opinions of 38 teachers by students with those by administrators revealed (a) substantial agreement between administrators and students, (b) administrators agree as well with students as they agree with each other on most of the items in the questionnaire used, (c) the agreement between student groups is higher than the agreement between administrators, and (d) "halo" has less influence on students' than administrators' opinions of teachers.

CHAPTER II

TO WHAT EXTENT ARE PARENTS' JUDGMENTS OF TEACHERS BASED ON STUDENT REACTIONS?

Educators have observed that parents' opinions of teachers are influenced by student reactions to teachers. Their observations have led to pronouncements like "Good school-community relationships begin in the classroom" and "The teacher's reputation is made or broken around the home dinner table." However, there is available little systematically-assembled data to support these pronouncements. The purpose of this chapter is to report on parents' answers to a series of questions regarding the stated problem.

Procedures

The first procedural step was to ask parents of children in the classrooms of 47 teachers to answer three questions at the beginning of the school year (October). The distribution of these teachers by grade level and by schools is indicated below in Table X.

TABLE X

DISTRIBUTION BY SCHOOLS AND GRADE LEVEL
OF TEACHERS OF CHILDREN WHOSE PARENTS ANSWERED QUESTIONNAIRE

Grade	Schools							No. of Teachers
	A	B	C	D	E	F	G	
1			1	1	1	1		4
2	1		1		1	1		4
3	1		1		1	1		4
4	1		1	1	1	1		5
5	1			1		1	1	4
6			1	1	1	1	1	5
7		1		1	1	1	1	5
8	1	1			1	1		4
9	1	1		1		1		4
10		1			1			2
11	1					1		2
12		1		1	1	1		4
Total	7	5	5	7	9	11	3	47

The student-enrollment in these elementary schools ranged from 235 to 963. The high-school enrollments ranged from 145 to 1460.

Replies were received from at least four parents of children taught by each of the 47 teachers. In all, 301 parents answered the following three questions.

1. To what degree are your opinions of teachers influenced or determined by each of the following factors? Add to the suggested answers (if you have additions), then underline one answer for each factor.
   a. Comments made by your son or daughter
      High Moderate Low
   b. Comments made by friends of your son or daughter
      High Moderate Low
   c. Comments made by other parents
      High Moderate Low
   d. Personal contacts with the teacher at PTA meet-

ings and/or room visits, and/or teacher-parent conferences

High Moderate Low

e. Observations of behavior and attitudes of your son or daughter which reflect the kind of influence the teacher has on him or her

High Moderate Low

2. To what extent are your child's opinions of a teacher communicated to you through the means listed below. Encircle the response that you consider appropriate.
G=Great, M=Moderate, L=Little, N=None.

a. Comments by son or daughter

G M L N

b. Direct observation of child's behavior and attitudes which reflect the kind of influence a teacher has on him or her

G M L N

c. Other _____

G M L N

3. To what degree are your opinions of a teacher based on the reactions (likes, dislikes, enthusiasms, fears, opinions) of your son or daughter to that teacher? Underline your answer. (a) Almost entirely (b) To a great extent (c) To a moderate extent (d) To a small degree
If you selected "c" or "d" as your answer, please indicate on what factor or factors your opinions are based: _____

The second step was to get some of the 301 parents who responded at the beginning of the year to assist further by doing the following:

a. Keep a diary or record of all the information about one teacher (a specified teacher of the parent's child) that reaches the parent throughout the school year. They were told, "Parents usually cannot avoid getting some information about teachers of their children and arriving at conclusions. Participants in this study will be asked to make no attempt to seek information; they will be asked to do only one thing that parents normally do not do, namely, make notes on information that reaches them."

b. At the end of the school year, answer a questionnaire.

These conditions were met by 128 parents. The year-end questionnaire contained the same three questions answered at the beginning of the school year and the following additional questions:

1. Please answer each of the following questions by encircling the appropriate answer: A=Agree, D=Disagree, U=Undecided.

(a) The primary criterion of teacher merit is the ability of the teacher to have desirable effects on students.

A D U

(b) Few parents will question the assertion that parents' opinions of the worth of teachers are based largely on reports that the students take home.

A D U

If you disagree, why?

(c) The teacher who is held in high regard by students is likely to be held in high regard by parents.

A D U

If you disagree, why?

(d) Parents' appraisal of the merit of the school system is based largely on their appraisal of the effectiveness of the teachers in promoting the educational growth of their child or children.

A D U

If you disagree, why?

2. List the kinds of things that you saw or heard that either confirmed your first evaluation or brought about a change. (If your opinion of this teacher is more favorable now than it was at the beginning of the school year, what things happened to cause the change? If your opinion is less favorable, why? If your first opinion of this teacher has been confirmed rather than changed, please specify the kinds of information that helped to confirm your original opinion.) Feel free to point to success or failure in any aspect of teaching, in any extra-curricular activity, or in relationships with any persons or groups. List not only the kinds of happenings that influenced you, but also specify how information about these happenings reached you. Was it through direct observation? Through students? Through other parents? Use the reverse side of this sheet if you need more space for your answer.

3. How well do you think your son or daughter likes the named teacher? Underline your answer. (a) Excellent, (b) Good, (c) Average, (d) Below average.

4. How do you rate the success of this teacher in promoting the learning of your son or daughter (meeting academic needs)? (1) Excellent (2) Good (3) Average (4) Below average.

5. This teacher has sent reports to you during the year. If these reports contained a grade, in which of the following classifications would the grade or grades fall? (If the teacher does not issue grades, please try to estimate a grade based on the information you have received.) (a) Excellent, (b) Good (c) Average, (d) Below average.

The final step consisted in having all pupils in the classrooms of the 14 teachers of grades four, five and six answer the opinion questionnaire shown in the appendix, page 57. The data resulting from this final step are shown in the appendix on page 58.

Parents' Responses to Three Questions

Following are the replies, by 301 parents at the beginning and by 128 parents at the end of the year, to the three questions listed on page 20 and 21.

1. Of the five factors named below in Table XI, parents placed factors 4 and 5 first as sources of information which influenced their opinions of teachers.

TABLE XI

DEGREE TO WHICH PARENTS' OPINIONS OF TEACHERS ARE INFLUENCED BY THE NAMED FACTORS

Factor	No. and Percent	Beginning of Year				End of Year			
		High	Mod.	Low	Total	High	Mod.	Low	Total
1. Comments made by son or daughter	Number	87	193	21	301	48	74	6	128
	Percent	29	64	7	100	37	58	5	100
2. Comments made by friends of son or daughter	Number	19	149	133	301	10	74	44	128
	Percent	6	50	44	100	8	58	34	100
3. Comments made by other parents	Number	51	178	72	301	12	90	26	128
	Percent	17	59	24	100	9	70	20	99
4. Personal contacts with teacher	Number	223	60	18	301	106	22	0	128
	Percent	74	20	6	100	83	17	0	100
5. Observations of behavior and attitudes of son or daughter	Number	193	66	42	301	90	34	4	128
	Percent	64	22	14	100	70	27	3	100

This table should be interpreted as follows: 87, or 29 percent of the 301 parents who answered this question at the beginning of the year, indicated that their opinions of teachers are influenced to a "high" degree by comments made by their children. At the end of the year, 128 parents answered this same question a second time. A total of 48, or 37 percent of the 128, selected "high" degree as their answer to the question.

2. Table XII shows that parents think the two named "means" are approximately equal in importance in communicating children's opinions of teachers to parents.

TABLE XII

EXTENT TO WHICH CHILDREN'S OPINIONS OF TEACHERS ARE COMMUNICATED TO PARENTS THROUGH THE NAMED MEANS

Means	Number and Percent	Beginning of Year					End of Year				
		G	M	L	N	Total	G	M	L	N	Total
Comments by son or daughter	Number	129	151	21	0	301	66	56	2	4	128
	Percent	43	50	7	0	100	51	44	2	3	100
Observation of children's behavior and attitudes	Number	132	130	21	18	301	54	50	20	4	128
	Percent	44	43	7	6	100	42	39	16	3	100

G=Great, M=Moderate, L=Little, and N=None

3. The data in Table XIII show that 49 percent (32 + 17) of the parents indicated at the beginning of the year that their opinions of teachers are based "to a great extent" on the reactions of children to teachers. At the end of the year 61 percent (58 + 3) took this position.

TABLE XIII

DEGREE TO WHICH PARENTS' OPINIONS OF A TEACHER ARE BASED ON THE REACTIONS OF THEIR CHILDREN TO THE TEACHER

Degree	Beginning of Year		End of Year	
	Number	Percent	Number	Percent
Almost entirely	51	17	4	3
To a great extent	97	32	74	58
To a moderate extent	129	43	46	36
To a small degree	24	8	4	3
Totals	301	100	128	100

Parents' Replies to Questionnaire Answered at Year End

Following are the replies to five questions, listed on page 21, answered by 128 parents at the close of the school year.

1. The first question called for response to the four statements shown in Table XIV. It will be observed that more than two-thirds of the respondents agreed with all four statements.

TABLE XIV

PARENTS' RESPONSE TO FOUR STATEMENTS WHEN ASKED TO CHOOSE THE APPROPRIATE ANSWER

Statement	Number and Percent	A	D	U	Total
a. The primary criterion of teacher merit is the ability of the teacher to have desirable effects on students.	Number	104	14	10	128
	Percent	81	11	8	100
b. Few parents will question the assertion that parents' opinions of the worth of teachers are based largely on reports that students take home.	Number	90	24	14	128
	Percent	70	19	11	100
c. The teacher who is held in high regard by students is likely to be held in high regard by parents.	Number	104	18	6	128
	Percent	81	14	5	100
d. Parents' appraisal of the merit of a school system is based largely on their appraisal of the effectiveness of the teachers in promoting the educational growth of their children.	Number	124	2	2	128
	Percent	96	2	2	100

A=Agree, D=Disagree, U=Undecided.

Interpret as follows: 104, or 81 percent, of 128 parents agreed with the first statement. A total of 14, or 11 percent, disagree. The remaining 10, or 8 percent of the 128 parents, were undecided.

2. The second question called upon each parent to list the kinds of things he saw or heard (and to specify sources of information) that either confirmed his original impression of the teacher of his child or caused a re-evaluation. For example, one parent whose opinion of the teacher improved during the year said, "My opinion is more favorable than at the beginning of the year because I have learned that this teacher gets respect and his classes are tough but enjoyed. My sources of information are my son and personal observation." One whose opinion of a teacher went down said, "There is too much fooling around and not enough discipline. My daughter and her friends are my sources of information."

Table XV is a summary of reports of this kind by 50 parents. It will be observed that the sources of information, named in the order of frequency, are (1) "My child," (2) Personal observation, (3) Other parents and (4) Other children.

TABLE XV

FIFTY PARENTS IDENTIFY JUDGMENT-FORMING FACTORS AND SOURCES OF INFORMATION ON SAME

Judgment-Forming Factors	Sources			
	Personal Observation	My Child	Other Parents	Other Children
Firm, fair and courteous	6	12	5	4
Knows strong and weak points of child	3	1	2	
Creates liking for school	2	7		1
Inspires students to study	4	2	3	1
Knows subject and knows how to teach	5	7	3	2
Students have high regard for teacher	1	7	2	1
Sense of humor	1	3	1	1
Teacher likes and respects children	1	3	1	1
Helps child to make friends	1	1		
Helps child develop self-confidence	2	3		
Helpfulness when child was ill	2	3		
Makes school activities interesting		2	2	2
Enjoys embarrassing students		1	2	1
Children left alone too much	2	2	1	1
Classes are boring		2	1	2
Can't cope with slow learners	2	3	1	1
Has monotonous voice	1		1	
Coarse or vulgar at times		3	2	2
Makes mistakes in English	1	1		
Talks about religion too much		1		
Includes quiet as well as loud pupils in class discussion		1		
Totals	34	65	27	20

Interpret as follows: Being "firm, fair, and courteous" or failure to be such is a factor which caused some parents to change their opinions of a teacher. Six parents cited "personal observation" as a source of information on this factor. Twelve indicated the information came from their child. Five cited "other parents" as a source and four said their source of information was "other children" (friends of their child). In many instances a parent identified more than one source.

Parents' responses to questions 3, 4 and 5 are shown in Table XVI.

TABLE XVI
HOW 128 PARENTS ANSWERED THREE QUESTIONS

Questions	Answer	Parents: Elementary	Parents: High School	Total Number	Percent
How well do you think your child likes the named teacher?	Excellent	40	40	80	62
	Good	3	5	8	6
	Average	15	16	31	24
	Below Average	2	7	9	7
	Total	60	68	128	99
How well do you rate the success of this teacher in promoting the learning of your child?	Excellent	33	30	63	49
	Good	17	26	43	34
	Average	8	8	16	12
	Below Average	2	4	6	5
	Total	60	68	128	100
What grade did your child receive from this teacher?	Excellent	20	23	43	34
	Good	28	26	54	42
	Average	9	15	24	18
	Below Average	3	4	7	6
	Total	60	68	128	100

When these responses by parents to one question are correlated with their responses to each of the other questions, the coefficients shown in Table XVII result. These data indicate that there is a significant relationship between parents' estimate of a child's liking for a teacher and parents' conclusions concerning the teacher's success in promoting learning.

TABLE XVII

PARENTS' OPINION OF TEACHER'S SUCCESS IN PROMOTING LEARNING CORRELATED WITH OTHER FACTORS

Factors Correlated	Opinions by 60 Elementary-School Parents	Opinions by 68 High-School Parents	Opinions by 128 Elementary and High-School Parents
Parent's opinion of teacher's success in promoting learning and parent's opinion of child's liking for teacher	r .73 ± .06	r .55 ± .08	r .63 ± .05
Parent's opinion of teacher's success in promoting learning and child's grades	r .26 ± .12	r .51 ± .09	r .41 ± .07

Interpret as follows: When the opinions by 60 parents of elementary-school children were correlated with their opinions of their child's liking for the teacher, the coefficient .73 resulted. The opinions by 68 parents of high school students on these factors produced the coefficient .55. The opinions by the parents in both of these groups produced the coefficient .63.

Conclusion

The data presented in this chapter support the conclusion that parents' judgments of teachers are based to a great extent on the reactions of their children to teachers.

CHAPTER III

DO STUDENT OPINIONS OF FORMER TEACHERS CHANGE AS STUDENTS GAIN MATURITY?

Several aspects of this question have been investigated. The Duncans[1] reported, "We find that students acquire personal biases, bitter prejudices, unreasoning likes and dislikes, and other mental acquisitions through association with certain types of teachers and that they retain these."

Drucker and Remmers[2] found that college alumni of at least ten years' standing viewed former instructors much the same as current undergraduates. They said, "This study presented evidence that the judgments made by undergraduates of their instructors are valid ones in terms of permanence and maturity."

Boyce and Bryan[3] asked 824 adult judges to select two of the best and two of the worst teachers under whom they had ever studied, and to rate these teachers as they would have rated them when they sat in their classrooms. They summarized their findings in these words, "Only a small minority of judges changed, to any significant extent during the post-school years, their opinions of former teachers."

The purpose of the present study was to learn the extent to which the image of given teachers changes as students gain maturity. The specific questions investigated are: Do high school seniors and college sophomores differ in their opinions of the same teachers? Do seventh-grade pupils and high school seniors differ in their opinions of the same teachers?

Procedures

Do high school seniors and college sophomores differ in their opinions of the same teachers? In answering this question high school seniors were asked to react to 40 teachers. Two years later all of the same students who had entered college were asked to react again to the same teachers, making use of the same opinion questionnaire (see appendix, pages 55 and 56).

The number of high school seniors who rated each of the 40 teachers ranged from 18 to 57, the average being 40 students (one to three classes). Thirty-five of these 40 teachers taught physics and five taught chemistry. Two years later, the number of the same students, now college sophomores, who rated each of the same 40 teachers ranged from 9 to 31, the average being 21 sophomores per teacher.

Do seventh-grade pupils and high school seniors differ in their opinions of the same teacher? In answering this question, student reactions to each of 34 teachers were obtained from both seventh and twelfth graders at the same time by means of the same opinion questionnaire (see appendix, page 53 and 54). The seventh-grade students were currently (1962) being taught by these 34 teachers and the twelfth grade students had studied under these same teachers when in the seventh grade five years previously.

The number of seventh-grade students who rated each of the 34 teachers ranged from 33 to 104, the average being 63. The number of twelfth graders who rated each of the same teachers ranged from 16 to 95, the average being 41.

---

[1] H. G. Duncan and W. L. Duncan, "Student-Teacher Relationship." **Sociology and Social Research**, 18:450. July 1934.

[2] A. J. Drucker and H. H. Remmers, "Do Alumni and Students Differ in Their Attitudes Toward Instructors?" **Journal of Educational Psychology**, 42:129-143, March 1951.

[3] R. B. Boyce and R. C. Bryan, "To What Extent Do Pupils' Opinions of Teachers Change in Later Years?" **Journal of Educational Research**, 37:698-706, May 1954.

How Teachers of High-School Seniors Are Viewed Currently and Two Years Later

Line A in Table XVIII below represents opinions expressed by 51 high school seniors. Line B represents opinions expressed by 20 of these same students two years later when sophomores in college. Note the close agreement between the two lines. These students did not significantly change their opinions of this teacher. Similar data led to the same conclusion concerning the great majority of the 40 teachers.

TABLE XVIII, Part 1

OPINIONS OF ONE TEACHER EXPRESSED BY STUDENTS
WHEN HIGH SCHOOL SENIORS AND WHEN COLLEGE SOPHOMORES
Line A=High School Seniors, Line B=College Sophomores

SCALE STEPS	SCALE AVERAGE		QUESTIONS 1	2	3	4	5	6	7	8	9	10
Excellent	1.0	100										
	1.1	99										
	1.2	98										
	1.3	97										
	1.4	96										
	1.5	95										
	1.6	94										
	1.7	93										
	1.8	92										
	1.9	91										
Good	2.0	90										
	2.1	89										
	2.2	88										
	2.3	87										
	2.4	86										
	2.5	85										
	2.6	84										
	2.7	83										
	2.8	82										
	2.9	81										
Average	3.0	80										
	3.1	79										
	3.2	78										
	3.3	77										
	3.4	76										
	3.5	75										
	3.6	74										
	3.7	73										
	3.8	72										
	3.9	71										
Below Average	4.0	70										

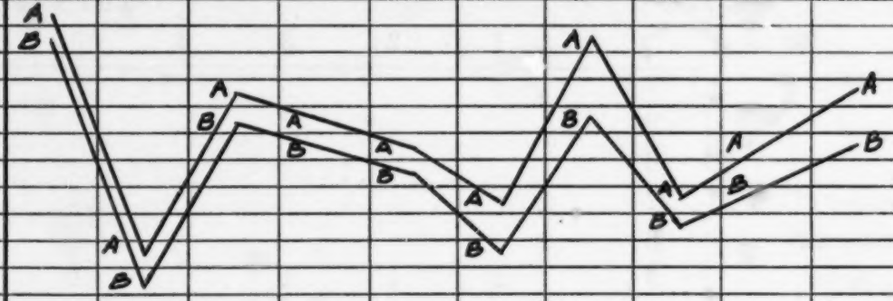


TABLE XVIII, Part 2

	Number of Students Who Chose Each Scale Step																		
	High School Seniors									College Sophomores								
Scale Steps	1	2	3	4	5	6	7	8	10	1	2	3	4	5	6	7	8	10
Excellent	48	15	40	35	29	21	43	21	35	18	7	12	11	10	6	13	7	11
Good	3	29	9	14	19	26	8	24	15	2	6	7	7	7	10	6	10	7
Average	0	6	2	2	2	4	0	5	1	0	6	1	2	3	4	1	3	2
Below Average	0	1	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0
Total	51	51	51	51	51	51	51	51	51	20	20	20	20	20	20	20	20	20

In table XX below only statistically-significant (.01 level) gains and losses made by the 40 teachers are recorded. It will be observed that, on question 1, two teachers gained 5 scale-average points and one teacher out of 40 lost 6 points. In all, 7 of the 40 teachers, or 17 percent, received a significantly higher student-reaction average on one or more questions from college sophomores and 7 teachers, or 17 percent, received a significantly lower average on one or more questions. On any given question, the number of teachers who gained ranges from none to two and the number who made losses ranges from none to two.

It will be observed that the differences between the means for twelfth graders and college sophomores range from + 1 to – 2. Question 9 has been omitted from this and the preceding table. Because of low reliability, question 9 (value of subject) in the 1960 questionnaire was changed to question 9 (think) in the 1962 questionnaire shown on pages 55 and 56.

TABLE XX

SIGNIFICANT DIFFERENCES BETWEEN THE REACTIONS TO 40 TEACHERS BY STUDENTS WHEN SENIORS IN HIGH SCHOOL AND SOPHOMORES IN COLLEGE

		Questions								
		1	2	3	4	5	6	7	8	10
	10+									
	9									
	8									
Number of	7					1			1	
Statistically	6						2			
Significant	5	2	1	1		1		1		
Points Gained	4		1							1
	3									
	2									
	1									
	0									
	1									
	2									
	3									
Number of	4									
Statistically	5									1
Significant	6	1		1		1		1		1
Points Lost	7							1		
	8									
	9				2					
	10+									
Total No. of Teachers		40	40	40	40	40	40	40	40	40
Mean for 12th Graders		95	88	91	93	89	87	91	91	91
Mean for Sophomores		94	89	91	91	89	87	90	90	90
Difference		–1	+1	0	–2	0	0	–1	–1	–1

Interpret as follows: On question 1, two teachers out of 40 gained 5 scale-average points. On question 1, one teacher lost 6 points. All the differences shown in this table are statistically significant at the .01 level. Differences that did not reach this level of significance are not recorded. The method used to compute the statistical significance of differences (gains or losses) is illustrated in Table XXVIII, page 39.

On question 1, the mean of the student-reaction averages by 12th graders of 40 twelfth grade teachers is 95. Two years later these students produced a mean of 94 when reacting in retrospect to the same 40 teachers. The difference between these means is –1.

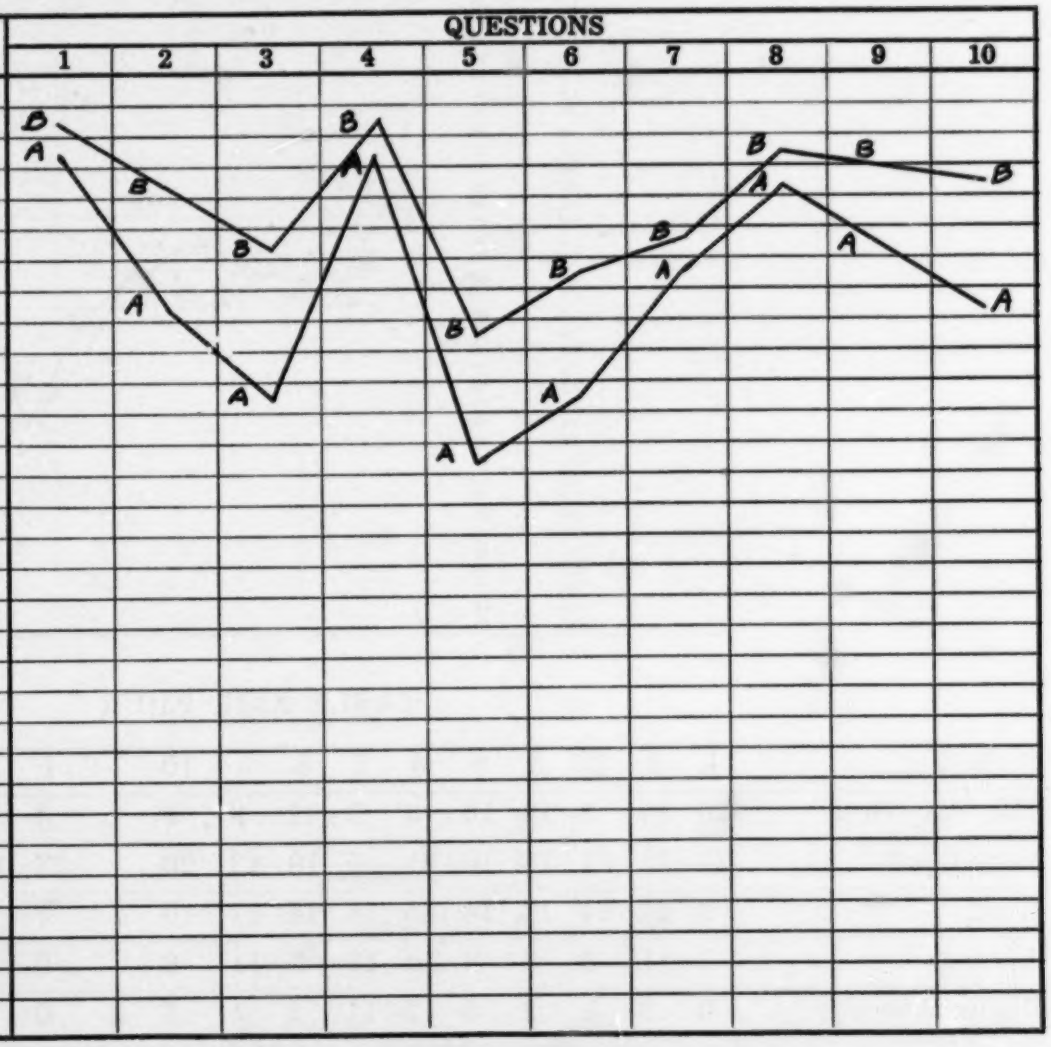
The case of Mr. Smith presented below in Table XXI is extreme. His averages are responsible for the only gain recorded on the previous page under question 10, the only gain on question 3, and one of the two gains on question 2. In spite of the differences between line A and B, the same high and low points appear in both. For none of the 40 teachers are the gains or losses of such a nature or magnitude as to break the pattern of graphed averages.

TABLE XXI

REACTIONS TO MR. SMITH BY 43 HIGH SCHOOL SENIORS AND BY 26 OF THESE SAME STUDENTS TWO YEARS LATER

Graph line A=High School Seniors. Line B=College Sophomores.

SCALE STEPS	SCALE AVERAGE		QUESTIONS 1	2	3	4	5	6	7	8	9	10
Excellent	1.0	100										
	1.1	99										
	1.2	98										
	1.3	97										
	1.4	96										
	1.5	95										
	1.6	94										
	1.7	93										
	1.8	92										
	1.9	91										
Good	2.0	90										
	2.1	89										
	2.2	88										
	2.3	87										
	2.4	86										
	2.5	85										
	2.6	84										
	2.7	83										
	2.8	82										
	2.9	81										
Average	3.0	80										
	3.1	79										
	3.2	78										
	3.3	77										
	3.4	76										
	3.5	75										
	3.6	74										
	3.7	73										
	3.8	72										
	3.9	71										
Below Average	4.0	70										



Key to Questions

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business like
10. All-round ability

Interpret as follows: On question 1, Mr. Smith received an average of 98 from 43 high school seniors. Two years later the reactions by 26 of these same students, when college sophomores, averaged 99 on question 1.

How Seventh-Grade Teachers Are Viewed By Seventh and Twelfth Graders

Table XXII below shows that the current seventh graders and twelfth graders, looking back after five years, agreed that this teacher did not conduct interesting classes. Also, the profiles of the other 33 teachers usually show agreement on the outstanding strengths and weaknesses of teachers.

TABLE XXII, Part 1

REACTIONS TO ONE TEACHER BY SEVENTH-GRADE STUDENTS AND BY TWELFTH GRADERS WHO RECORDED OPINIONS IN RETROSPECT

Line A=Seventh graders, Line B=Twelfth graders

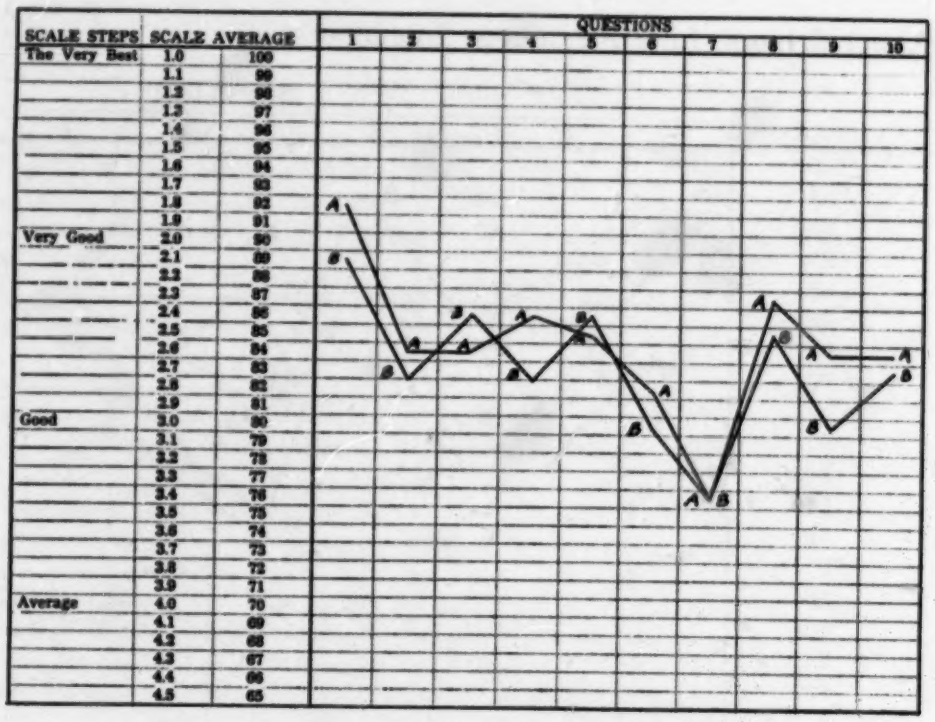


TABLE XXII, Part 2

Scale Steps	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
The Very Best	20	10	5	12	10	3	2	12	9	9	4	1	4	4	6	2	0	4	2	2
Very Good	22	16	21	18	16	21	9	18	13	20	23	16	16	10	15	8	7	14	9	13
Good	8	11	14	11	14	15	16	14	17	9	7	9	12	14	8	13	12	11	11	12
Average	1	11	8	8	8	10	13	6	11	8	0	8	2	5	5	10	10	5	11	7
Below Average	0	3	3	2	3	2	11	1	1	5	0	0	0	1	0	1	5	0	1	0
Total	51	51	51	51	51	51	51	51	51	51	34	34	34	34	34	34	34	34	34	34

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business like
9. Think
10. All-round ability

Interpret as follows: Line A represents the average of the reactions by 51 seventh graders to one teacher. Line B represents the opinions of 34 twelfth graders as they remembered this teacher who had taught them five years previously.

Table XXIII below contains data which show how the student-reactions by seventh and twelfth graders to 32 teachers compare. When all of the "Higher Averages by Twelfth Graders" were tested for significance, it was found that only four of the 32 teachers received significantly higher (.01 level) reaction averages from twelfth graders than from seventh graders. Of these four, one improved on one question, one on two questions, and two improved on three questions. The statistical significance of differences was computed as illustrated on page 39.

The number of "Lower Averages By Twelfth Graders" exceeds the number of "Higher Averages By Twelfth Graders." For example, on question 10 nine teachers received higher averages (most not significantly so) in contrast to 21 who received lower averages. This trend conforms to the expectation that some of these teachers would have improved during the five years since the twelfth graders sat in their classrooms and therefore should have been rated higher by seventh graders.

TABLE XXIII

REACTIONS BY SEVENTH GRADERS TO 32 TEACHERS COMPARED TO REACTIONS BY FORMER STUDENTS (TWELFTH GRADERS WHO RECORDED OPINIONS IN RETROSPECT)

		Questions								
	Points	1	2	3	4	5	6	7	8	10
	10+						1		1	
	9									
Higher	8									
Averages	7		2							1
By	6		1	1						
Twelfth	5		1	1	3	1	1		1	
Graders	4				2	1		3	1	1
	3	2	3	3	4	3	3	1	3	1
	2	4	5	2	2	4	6	1	2	3
	1	2	2	4	4	2	2	2	4	3
	0	1	3	3	2	2	3	2	4	2
	1	4	2	2	2		5	6	3	5
	2	7	1	2	3	3	4	1	4	3
Lower	3	2	4	5	4	5	1	1	3	3
Averages	4	3	4	6	1	3	1	1	3	3
By	5	1	2	1	2	2	3	2	2	2
Twelfth	6	3	3		1		1	3	1	1
Graders	7	2			1	1		2		1
	8	1				2		4		
	9				1	2	1	2		1
	10+			2		1	1	1		2
Total No. of Teachers		32	32	32	32	32	32	32	32	32
Mean for 7th Graders		91	86	85	86	87	85	86	86	87
Mean for 12th Graders		89	86	84	86	85	84	83	86	85
Difference		–2	0	–1	0	–2	–1	–3	0	–2

Interpret as follows: On question 1, the average of the reactions by twelfth graders was 3 points higher than the average by seventh graders for two of the 32 teachers. The twelfth graders recorded opinions held five years after leaving the classrooms of these teachers of seventh graders. For 4 teachers, the average of twelfth graders was 2 points higher than the average by seventh graders.

On question one, 91 is the grand mean that resulted from the reactions by seventh graders to all 32 teachers. The corresponding average by twelfth graders is 89. The difference between these two means is –2.

Conclusion

The data presented fail to give support to those teachers who believe that current students will view them with more favor in later years. A teacher's best chance of gaining an improved image with students rests not in waiting for former students to mature but rather in increasing his prestige with students currently in his classroom.

CHAPTER IV

TO WHAT EXTENT MAY THE FEEDBACK OF INFORMATION ABOUT STUDENT REACTIONS IMPROVE TEACHER EFFECTIVENESS?

Two studies of this question have been reported. Savage[1] allowed student teachers five to twenty days in which to make improvements after receiving information about student reactions. Gage, Runkel and Chatterjee[2] obtained final reports from one to two months after informing teachers concerning the reactions of their students. In neither study did teachers make improvements at the .01 level of significance. In the study here reported, the high-school teachers (grades 7-12) had two years in which to make improvements.

Procedures

This study was initiated by the formation of an experimental and a control group of teachers. The teachers in the control group received no student-reaction reports. The invitation to join contained this statement, "It is our desire that the teachers in the control group be persons who have never used a student-opinion questionnaire like the one attached and will avoid using this or any similar questionnaire prior to June 1962, aside from that provided as a part of this study." Written student reactions, not seen by the control teachers, were obtained from two to three classes of each teacher in the spring of 1960 and again the spring of 1962.

Each teacher in the experimental group received three student-reaction reports during the study—in the spring of 1960 and 1961 and 1962.

The questionnaire used to obtain student reactions is shown in the appendix, pages 55 and 56. When copies of the questionnaire were mailed to teachers the accompanying directions specified that, during the 15 minutes needed by students to answer, someone other than the teacher receiving the service should be in charge of the class. That "someone" could be any member of the staff. The latter received the following instructions. "Immediately upon collecting the answered questionnaires from students, seal them in the self-addressed envelope provided for that purpose. This means that no one at school will see the student responses —not the person who administers the questionnaire, not the teacher being serviced, nor anyone else." Upon receipt of the answered student-opinion questionnaires at Western Michigan University, they were converted into a report and mailed to the teacher along with interpretive information. A copy of the report sent to one teacher in the spring of 1960 is shown on the following two pages in Table XXIV, Parts 1, 2 and 3.

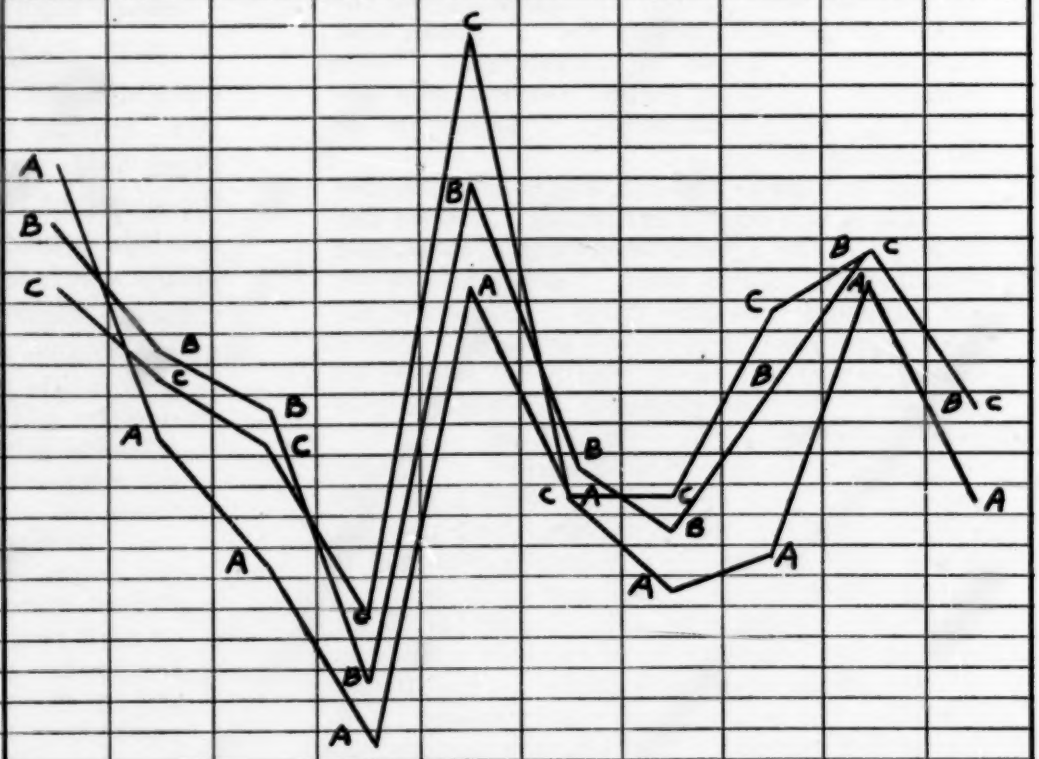
---

[1] M. L. Savage, Changes in Student Teachers Through the Use of Pupil Ratings. Unpublished Ed. D. Dissertation, University of Illinois, 1957.

[2] N. L. Gage, P. J. Runkel and B. B. Chatterjee, Equilibrium Theory and Behavior Change: An Experiment in Feedback from Pupils to Teachers. Bureau of Educational Research, University of Illinois, 1960.

TABLE XXIV, Part 1
GRAPHED AVERAGES OBTAINED FROM THE REACTIONS OF STUDENTS IN THREE CLASSES TAUGHT BY TEACHER X

SCALE STEPS	SCALE AVERAGE		QUESTIONS 1	2	3	4	5	6	7	8	9	10
Excellent	1.0	100										
	1.1	99										
	1.2	98										
	1.3	97										
	1.4	96										
	1.5	95										
	1.6	94										
	1.7	93										
	1.8	92										
	1.9	91										
Good	2.0	90										
	2.1	89										
	2.2	88										
	2.3	87										
	2.4	86										
	2.5	85										
	2.6	84										
	2.7	83										
	2.8	82										
	2.9	81										
Average	3.0	80										
	3.1	79										
	3.2	78										
	3.3	77										
	3.4	76										
	3.5	75										
	3.6	74										
	3.7	73										
	3.8	72										
	3.9	71										
Below Average	4.0	70										



Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount learning
7. Interest
8. Business-like
9. Value of subject
10. All-round ability

Interpret as follows: Graphed line A, in Part 1, represents the averages obtained from the reactions by students in one class. On question 1, the average is 1.6 or 94. Part II of the Table shows the scale choices made by the class of 20 students when answering question 1. Part 3, which follows, contains selected comments made by students in each of the three classes.

TABLE XXIV, Part 2
NUMBER OF STUDENTS WHO CHOSE EACH SCALE STEP

	Class A										Class B										Class C									
Scale Steps	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10	1	2	3	4	5	6	7	8	9	10
Excellent	10	1	3	0	6	3	0	0	8	2	8	2	4	2	9	2	2	2	8	2	7	5	5	0	14	0	0	6	7	0
Good	8	9	4	1	8	3	6	6	5	4	10	14	9	1	9	10	6	10	7	9	4	2	3	4	2	7	10	5	5	12
Average	2	8	5	7	5	11	7	9	6	11	3	4	4	6	3	4	8	9	6	9	5	10	5	7	1	9	3	5	4	4
Below Av.	0	2	8	12	1	3	7	5	1	3	0	1	4	12	0	5	5	0	0	1	1	0	4	6	0	1	4	1	1	1
Total	20	20	20	20	20	20	20	20	20	20	21	21	21	21	21	21	21	21	21	21	17	17	17	17	17	17	17	17	17	17

TABLE XXIV, Part 3

Selected favorable comments made in response to question 11 (Please name one or two things that you especially like about this class or teacher):

Class A: She is nice . . .* She will help you . . . She is always willing to help . . . She understands the girls real well . . . She seems friendly and she seems like she wants to help you . . . Knows what she's doing . . . Knows the subject well . . . Nice personality . . . She is patient. She is a very nice person . . . She has patience . . . I admire her for the patience she has . . .

Class B: She is pleasant. She is understanding . . . She is nice and understanding . . . Good personality . . . She is quite understanding about most everything . . . She is nice . . . She is nice to you and will help you do many things . . . She knows her subject, and helps us in anyway to learn . . . She is usually patient with us . . . She helps us when we need it . . . She understands our problems and tries to understand us . . . She is very helpful . . .

Class C: She is a friendly teacher . . . Understanding . . . She is nice and easy to get along with . . . She tries her best to explain. She knows her subject well . . . She is a friendly person and is patient with everyone . . . She gets things done . . . Knows the subject quite well . . . She is understanding and courteous when you have a problem . . . She knows what she is doing . . . She dresses nicely . . . She is patient and understanding . . . A very friendly person . . . She is quite cooperative . . . Always most willing to help . . .

Selected comments made in response to question 12 (Please name one or two things that you dislike about this class or teacher):

Class A: She can't keep discipline . . . She spends too much time with pupils from classes of the hour before . . . She doesn't plan ahead very well . . . She doesn't control the class well enough . . . She has class pets . . . She has pets, and she does not have much control over the students . . . She has too many pets . . . She can never keep the class quiet . . . Sometimes it's dull . . . The class hardly ever learns anything new . . .

Class B: She does not have good discipline . . . She can't make the kids mind. She doesn't make the class interesting . . . She needs to keep better discipline . . . She doesn't make it interesting so she can't hold our attention . . . She doesn't have control over the students . . . We don't do anything that is interesting . . . She knows what she is doing, but it is hard for her to get it across to the class . . .

Class C: She doesn't have very good control over the class . . . She favors a certain group too much . . . She never gets anything done. She can't control the class . . . She cannot keep the attention of the class . . . She is not able to control the class . . . She shows favoritism . . . The class is not kept well-disciplined . . . She doesn't keep the class under control. The class is not kept under control and has to study things that doesn't interest it . . . The class is boring . . . She doesn't have much control of her classes. Her teaching isn't interesting . . . She has pets. She is unfair with her students. She doesn't know how to keep the students' attention. She doesn't teach anything interesting . . .

* The three dots mark the end of the comment by one student and the beginning of the comment by another student.

Each teacher was asked to fill in a one-page questionnaire calling for information about himself—number of years of teaching experience, degrees held, summer address and the like. Also, in the spring of 1962, after receiving his third student-reaction report, each teacher in the experimental group was asked to express his opinions of the value of student-reaction reports by means of the questionnaire which follows:

You have received three student-reaction reports since the spring of 1960. Your frank answers to the following questions, when combined with those of many other teachers, should result in a report of value. You will receive a copy of our final report.

1. Were the student-reaction reports received by you helpful or harmful? Underline your answer: Helpful, Harmful, Neither helpful nor harmful.

a. If your last report contained a higher student-reaction average, on one question or more, than your first report; in what ways did you change procedures, emphasis, or ways of doing things that could have had some influence in producing the higher average or averages?

b. If helpful, and the benefit did not show in the form of higher student-reaction averages, what form did the benefit take?

c. If harmful, please explain.

d. If neither helpful or harmful, please comment.

2. Some teachers say that all classroom teachers should obtain a student-reaction report annually. Do you agree with this recommendation? Underline your answer: Agree, Disagree

a. If you agree, why?

b. If you disagree, why?

3. A mathematics teacher recently expressed his views of student-reaction reports as follows: "To learn how well my students are mastering the fundamentals of mathematics, I give tests periodically. To learn of the likes and dislikes which develop in students while taking my course, I use a student-opinion questionnaire. I am as concerned about my students' attitudes toward me and my teaching as I am about the facts they learn. After all, my efficiency in teaching facts and understandings is conditioned by their emotional reactions to me and my methods. I want to make sure that my students are developing both the attitudes and the background of knowledge that will challenge them to elect and prepare them for additional math courses in the future."

Do you agree that this is a sound, defensible statement? Underline your answer: (1) Yes (2) No (3) In part.

The size of both the experimental and the control group became smaller as the study progressed. Between 1960 and 1961 the control group was reduced from 105 to 75 and the experimental group from 125 to 93 teachers. The reasons follow: Secured a new position in another school, transferred to administrative duties, took leave to continue work at a university, quit teaching, and failure to respond to correspondence for reasons unknown. Between 1961 and 1962 the control group was reduced further from 75 to 59 and the experimental group from 93 to 60 teachers. Some of these were lost from the study for the reasons already stated and others were eliminated by the investigator for failure to meet these two criteria: (1) Student reactions to a teacher must be obtained from students in the same subject in 1960 and 1962, and (2) The minimum enrollment in the combined two or three classes of a teacher must reach 40 students each year.

Information about these teachers, who met all the conditions of the study, is presented below.

TABLE XXV

INFORMATION ABOUT TEACHERS IN THE EXPERIMENTAL AND THE CONTROL GROUPS

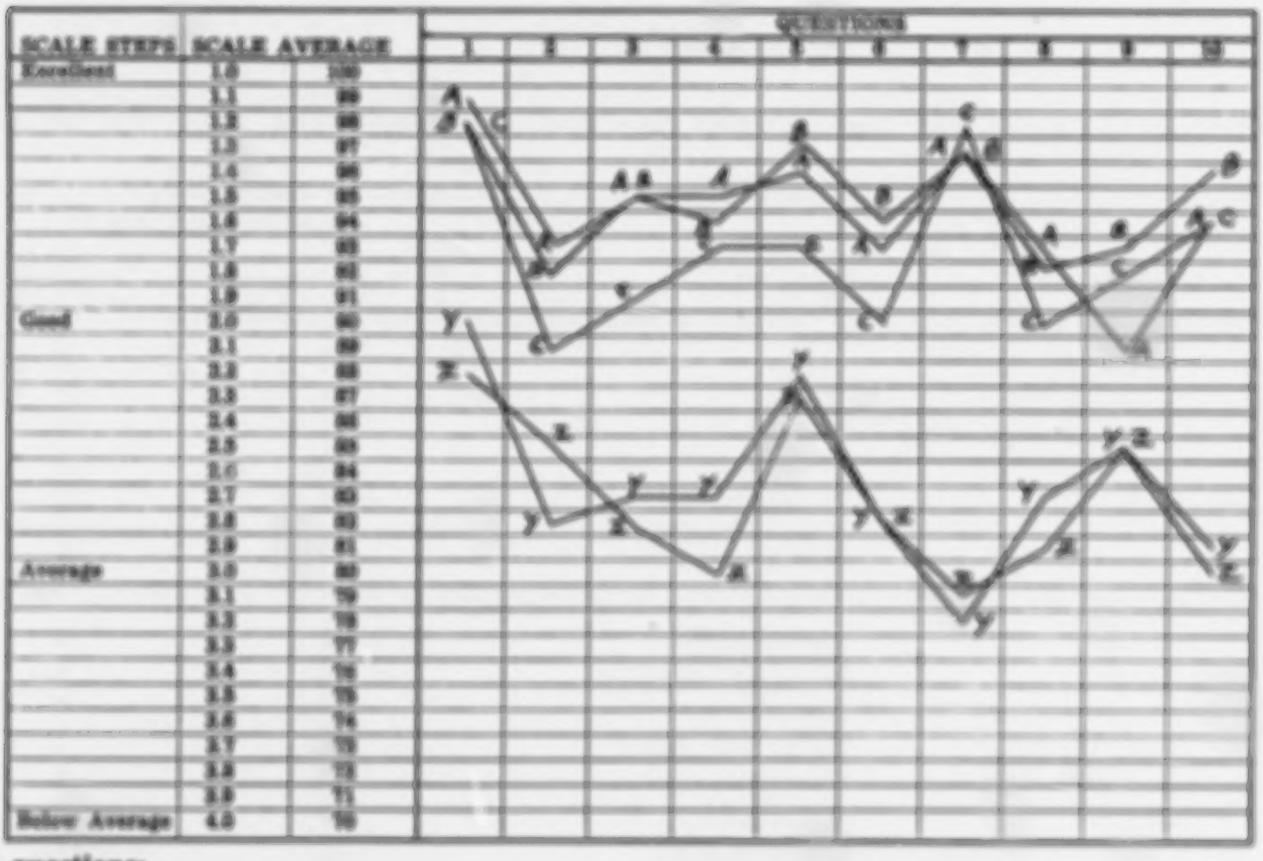
Factor	Classification	Number of Teachers	
		Experimental	Control
Years of teaching experience	1-5	16	8
	6-10	18	11
	11-15	13	10
	16-20	5	12
	21 and over	8	18
	Totals	60	59
Subject taught	Agriculture	1	0
	Business Education	4	4
	English	12	16
	Home Economics	2	1
	Industrial Arts	3	3
	Mathematics	9	6
	Social Studies	14	14
	Science	15	12
	Foreign Language	0	3
	Totals	60	59
Size of School	100-300	7	2
	301-500	26	19
	501-700	7	16
	701-900	3	3
	901-1100	3	3
	1101 and over	14	16
	Totals	60	59

Reliability and Halo Effect Present in Student Reactions

Table XXVI below shows the student reactions to two teachers. Inspection of the graphs indicates that the reactions of students to these two teachers are both reliable and reasonably free from the influence of "halo." The three classes which reacted to teacher "ABC" agree in their opinions. The same is true of the two classes which reacted to teacher "YZ." The fact that "halo" or the general reputation of these teachers did not prevent students from showing reasonably independent judgment on separate items is best illustrated in students' responses to question 7. Students point to ability to make classes interesting as one of the strengths of teacher "ABC." They point to this same factor as the primary weakness of Teacher "YZ." Also, the student reactions to teacher X shown in Table XXIV, page 33, show both reliability and freedom from halo effect.

TABLE XXVI

STUDENT REACTIONS TO TWO TEACHERS ON TEN QUESTIONS SHOWN GRAPHICALLY



Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business-like
9. Think
10. All-round ability

Interpret as follows: The graphed averages of student reactions to one teacher of three classes is shown by lines A, B and C, each line representing the average for one class. On question 1, classes A, B and C agree that this teacher has an excellent knowledge of the subject taught (averages: 98, 98 and 99).

The graphed averages of student reactions to another teacher is shown by lines Y and Z, each line representing the student-reaction averages for one class. On question 1, classes Y and Z agree that this teacher has a good knowledge of the subject (averages: 90 and 88). The questionnaire used is shown on pages 55 and 56.

Table XXVII below contains the reliability and intercorrelation coefficients obtained from the reactions of students to 50 teachers. The amount of agreement between chance-halves (average of 14 students per half) of the 50 classes is indicated by the coefficients that range from .76 ± .06 to .86 ± .04. The reliability coefficients for all students (both halves, average of 28 per class), as determined by the Spearman-Brown prophecy formula, range from .86 ± .04 to .93 ± .02. These coefficients indicate that student reactions are reliable.

The 90 intercorrelation coefficients are considerably lower than these reliability coefficients. This indicates that the reactions of these students are reasonably free from the influence of halo.

These conclusions are supported also by the data presented on page 18. The latter were obtained from different students and teachers.

TABLE XXVII

COEFFICIENTS (ACCOMPANIED BY INTERCORRELATION COEFFICIENTS) SHOWING AGREEMENT AMONG STUDENTS

Questions	1	2	3	4	5	6	7	8	9	10
1	84									
2	55 45	86								
3	39 39	57 58	80							
4	33 34	64 52	37 23	77						
5	24 31	45 58	68 75	13 32	79					
6	61 63	65 76	51 45	49 69	55 42	84				
7	37 30	49 66	48 62	30 37	64 65	52 62	83			
8	52 62	55 59	47 39	36 53	42 37	66 59	44 25	81		
9	50 49	69 74	55 56	54 67	53 45	78 72	64 36	55 56	76	
10	59 63	68 79	67 62	44 64	64 60	77 73	77 67	51 67	68 72	82

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business-like
9. Think
10. All-round ability

Interpret as follows: r. 84, in cell 1-1, is the coefficient produced by correlating pairs of averages on question 1, each average being the mean of half the students in one class. (The chance-half groups range in size from 12 to 23, the average being 14 students). In cell 2-2 is r. 86, the corresponding coefficient for question 2. The r. 55 and 45 in cell 1-2 are the two intercorrelation coefficients (averages on question 1 correlated with the averages on question 2).

Students show much discrimination in their comments about different teachers. The contrasting pictures they present are many. For example, following are some comments made concerning one teacher:

> "Tests are too easy . . . People get away with things they shouldn't get away with . . . He could be more strict on homework assignments . . . He doesn't assign enough homework . . . He should be stricter with us . . . I could learn more if we all didn't fool around so much . . . He gives easy tests" . . .

Contrast this with the image students have of another teacher:

> "He teaches us as if he were talking to a higher caliber student who can catch on very quickly but if you don't you are sunk. His tests are a bit too long for the class period . . . He does not go into very much detail when explaining how to do a certain problem but leaves a lot for the student to get on his own. This is good up to a certain point, for it makes a student think for himself, but I think he overdoes it . . . Because of this teacher's knowledge, it is hard for him to understand why the poorer students cannot get it . . . I believe he should be teaching in college, for it is hard for him to imagine how difficult it is for us when he knows it almost to perfection . . . He goes too fast . . . If you don't get it the first time, you don't get it at all" . . .

The list of strengths students identify by their comments about different teachers is a long one. The list of identified weaknesses is equally long.

Method of Determining Significance of Gains and Losses

In Table XXVIII, Parts 1, 2 and 3, is shown the method used to determine the significance of gains and losses made by teacher X. The gains and losses later reported for all participating teachers were computed in the same way.

Part 1 of the table below shows the reactions by 58 students (three classes) in 1960 and the reactions by 69 students (three classes) in 1962. Data for question 9 has been omitted. In the 1960 questionnaire, this question related to the value of the subject, but because of low reliability, it was replaced by the one shown in the 1962 form (see appendix, pages 55 and 56).

Part 2 of this table, shown on the next page, is Part 1 translated into graphed averages.

Part 3 indicates each gain or loss in terms of differences between averages and in terms of the t of each difference. In this report all gains or losses which reached the .01 level or any level of greater significance are designated by the figure .01 in disregard of higher levels of significance. Levels of less significance, for example .02 or .05, were not recorded.

TABLE XXVIII, Part 1

METHOD OF DETERMINING THE STATISTICAL SIGNIFICANCE OF GAINS AND LOSSES MADE BY TEACHER X

Scale steps	1	2	3	4	5	6	7	8	10	1	2	3	4	5	6	7	8	10
Excellent	25	8	12	2	29	5	2	0	4	37	21	23	7	29	11	7	11	18
Good	22	25	16	6	19	20	22	21	25	25	37	26	29	25	35	23	29	31
Average	10	22	14	20	9	24	18	23	24	7	10	14	23	13	21	32	28	19
Below Average	1	3	16	30	1	9	16	6	5	0	1	6	10	2	2	7	1	1
Total	58	58	58	58	58	58	58	58	58	69	69	69	69	69	69	69	69	69

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business-like
10. All-round ability

TABLE XXVIII, Part 2

METHOD OF DETERMINING THE STATISTICAL SIGNIFICANCE OF GAINS AND LOSSES MADE BY TEACHER X

A=1960 Averages, B=1962 Averages.

SCALE STEPS	SCALE AVERAGE		QUESTIONS 1	2	3	4	5	6	7	8	9	10
Excellent	1.0	100										
	1.1	99										
	1.2	98										
	1.3	97										
	1.4	96										
	1.5	95										
	1.6	94	B				A					
	1.7	93										
	1.8	92	A	B			B					
	1.9	91										
Good	2.0	90			B							B
	2.1	89										
	2.2	88						B				
	2.3	87		A						B		
	2.4	86										
	2.5	85			A		B				A	
	2.6	84						A		B		A
	2.7	83										
	2.8	82							A			
	2.9	81										
Average	3.0	80										
	3.1	79										
	3.2	78										
	3.3	77				A						
	3.4	76										
	3.5	75										
	3.6	74										
	3.7	73										
	3.8	72										
	3.9	71										
Below Average	4.0	70										

TABLE XXVIII, Part 3

Questions	1	2	3	4	5	6	7	8	10
A, 1960 average for 58 students	1.77	2.34	2.49	3.34	1.68	2.63	2.82	2.48	2.60
B, 1962 average for 69 students	1.56	1.84	2.04	2.52	1.82	2.20	2.56	2.27	2.04
Gain or loss=Difference	.21	.50	.45	.82	-.14	.43	.26	.21	.56
t	1.59	3.48	2.36	5.53	-.72	3.04	1.73	1.31	3.84
Level of significance		.01		.01		.01			.01

Comparison of Gains and Losses in Experimental and Control Groups

Table XXIX shows the size of the t scores for all significant (.01 level) gains and losses by both experimental and control teachers. It will be noted that the experimental teachers made more gains than the controls on all questions. For example, on question one, eleven of the experimental teachers improved significantly as compared to one of the control teachers.

Conversely, with the exception of question 1, the experimental teachers made fewer significant losses than the control teachers.

TABLE XXIX

SIZE OF t SCORES FOR ALL SIGNIFICANT (.01 LEVEL) GAINS AND LOSSES BY 60 EXPERIMENTAL AND 59 CONTROL TEACHERS

t scores	1		2		3		4		5		6		7		8		10	
	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C	E	C
5.00 and up	2		1		3		3		1				2				3	
4.00-4.99	2	1	3		2	1	4		6		2		6		1	1	5	
3.75-3.99			3		1	2	1	1	1	1					2		1	1
3.50-3.74	3		3		2		1		1	1		2	1		3		1	
3.25-3.49	2				1		2	1	1	1	1	3	1		2	1	1	1
3.00-3.24	2		1				6	1	1	1	1		1		3		4	
2.75-2.99			2		2	1	1		1		2	1	3	3	2		1	1
2.50-2.74					2		2				4		1	1	2			
Total number teachers who made gains	11	1	13	0	13	4	20	3	12	4	10	6	15	4	15	2	16	3
2.50-2.74							1						2					1
2.75-2.99				2		2		2	2	4	1		1	3		2		
3.00-3.24		1				1		1				2	1				1	
3.25-3.49				1	1	2				3						2		1
3.50-3.74				1						2				1			1	1
3.75-3.99								2				2						1
4.00-4.99	1		1			1	2			3				2	1	1		3
5.00 and up				1	1	2		1			1					1		
Total number teachers who made losses	1	1	1	5	2	8	3	6	2	12	2	4	4	6	1	6	2	7

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business-like
10. All-round ability

Interpret as follows: On question 1, eleven teachers (2 + 2 + 3 + 2 + 2) in the experimental group made between 1960 and 1962 gains above the .01 point level of significance. The t scores for two of these gains are 5.00 or higher. On the same question, one teacher in the control group made a gain and a t score which falls between 4.00 and 4.99.

The data in Table XXX indicate the percentage of teachers in the two groups who made gains and losses. It will be observed that 57 percent of the 60 teachers in the experimental group made significant gains on one question or more as compared with 24 percent of the 59 control teachers. Also, the experimental teachers made gains on more questions than the controls. Ten of the experimental teachers made gains on 6 or more questions. None in the control group did so.

Twelve percent of the experimental teachers made significant losses on one question or more as compared with 27 per cent of the control teachers. Also, the experimental teachers made losses on fewer questions than the teachers in the control group. Only 3 teachers in the experimental group made losses on three or more questions. Eleven of the control teachers did so.

TABLE XXX

PERCENTAGE OF TEACHERS IN THE EXPERIMENTAL AND CONTROL GROUPS WHO MADE SIGNIFICANT (.01 LEVEL) GAINS OR LOSSES ON ONE OR MORE QUESTIONS

Number of Questions	Teachers in the Experimental Group				Teachers in the Control Group			
	No Change	Gain	Loss	Totals	No Change	Gain	Loss	Totals
1		10*	3	13		6	3	9
2		6	1	7		4*	2	6
3		4	2	6		1	6	7
4		2		2		2		2
5		2		2		1	3	4
6		2	1	3			1	1
7		5		5			1	1
8		3		3				
10	19			19	29			29
Totals	19	34	7	60	29	14	16	59
Percent	31	57	12	100	49	24	27	100

* Note: One of these 10 teachers gained on one question (t=3.23 on question 8) and lost on another (t=2.68 on question 7).

* One of these 4 teachers gained on one question (t= 3.42 on question 8) and lost on another (t=2.86 on question 5).

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interest
8. Business-like
10. All-round ability

Interpret as follows: 10 of the teachers in the experimental group made a statistically significant gain on one of the questions in the questionnaire while making no significant gain on any other question. Three experimental teachers made a significant loss on one question while making no significant loss on any other question. Six experimental teachers gained significantly on two questions, etc.

The fact that the experimental teachers started the study with fewer years of teaching experience than the control teachers does not account for the improvement superiority of the former. The data in Table XXXI indicate that a larger percentage of the experimental than the control teachers made gains in all five classifications based on years of teaching experience. Also, the experimental teachers show fewer losses in all five classifications.

TABLE XXXI

GAINS AND LOSSES BY EXPERIMENTAL AND CONTROL TEACHERS CLASSIFIED ACCORDING TO YEARS OF TEACHING EXPERIENCE

Years of Experience	EXPERIMENTAL					CONTROL				
	Number Teachers	Gain	Loss	% Gain	% Loss	Number Teachers	Gain	Loss	% Gain	% Loss
21 and up	8	5	0	62	0	18	6	4	33	22
16-20	5	3	1	60	20	12	3	4	25	33
11-15	13	8	2	62	15	10	1	3	19	30
6-10	18	9	2	50	11	11	3	2	27	18
1- 5	16	9	2	56	12	8	1	3	12	37
Totals	60	34	7	57	12	59	14	16	24	27

Interpret as follows: 8 of the 60 experimental teachers had been teaching for 21 or more years. Five of these 8, or 62 per cent, made a statistically significant gain on one question or more. None of these 8 made a significant loss.

The fact that a smaller number of the experimental than the control teachers started the study with high prestige (as determined by the student-reaction average on all-round ability) does not account for their improvement superiority. The data in Table XXXII shows that a larger percentage of the experimental than the control teachers made gains in all prestige classifications. On the other hand, a smaller percentage of the experimental teachers show losses in all classifications but one, in which the two groups are equal.

TABLE XXXII

GAINS AND LOSES BY EXPERIMENTAL AND CONTROL TEACHERS CLASSIFIED ACCORDING TO PRESTIGE AT BEGINNING OF STUDY

Average on Question 10	EXPERIMENTAL					CONTROL				
	Number Teachers	Gain	Loss	% Gain	% Loss	Number Teachers	Gain	Loss	% Gain	% Loss
95-99	12	4	5	33	42	22	2	9	9	41
90-94	21	10	1	48	5	26	9	5	35	19
85-89	22	17	0	77	0	10	3	1	30	10
80-84	5	3	1	60	20	1	0	1	0	100
Totals	60	34	7	57	12	59	14	16	24	27

Interpret as follows: 12 of the 60 experimental teachers received at the beginning of the study a student-reaction average on question 10 (all-round ability or prestige) that fell between 95 and 99. Four of these 12, or 33 per cent, made a statistically significant gain on one question or more. Five of these 12, or 42 per cent, made a statistically significant loss on one question or more.

Teachers' Appraisal of the Value of Student-Reaction Feedback

Of the 60 teachers in the experimental group, 51 responded to the questionnaire shown on page 34.* In response to the question as to whether student-reaction reports were helpful, harmful, or neither helpful or harmful; respondents answered as follows:

	Number	Percent
Helpful	47	92
Harmful	1	2
Neither	3	6
Totals	51	100

Their responses fell in these classifications when indicating whether or not they agreed that all high-school teachers should obtain a student-reaction report annually:

	Number	Percent
Agree	34	67
Disagree	16	31
Undecided	1	2
Totals	51	100

The most typical comment of those who disagreed is, "Substitute **periodically** for **annually** and I would agree."

Following are typical comments by those who agreed: (1) Many of us frequently change techniques and would like to know if the change is beneficial or a lot of wasted effort, (2) Most human beings became set in their ways and become oblivious to the needs of others unless reminded, (3) Lets a teacher know his strengths and weaknesses as seen by students and permits him to observe trends from year to year, (4) Written student reactions are good raw material which serves well as one resource as a teacher plans future classroom strategy, (5) It is a constant reminder to a teacher that he is dealing with human beings who have emotions, (6) Regularly and effectively this instrument helps the busy teachers to accomplish needed self-evaluation, and (7) An annual report of this kind gives me much information about something I need to know—the effects of my teaching on my students.

These teachers were asked if they agreed or disagreed with the following statement made by a mathematics teacher: "To learn how well my students are mastering the fundamentals of mathematics, I give tests periodically. To learn of the likes and dislikes which develop in students while taking my course, I use a student-opinion questionnaire. I am as concerned about my students' attitudes toward me and my teaching as I am about the facts they learn. After all, my efficiency in teaching facts and understandings is conditioned by their emotional reactions to me and my methods. I want to make sure that my students are developing both the attitudes and the background of knowledge that will challenge them to elect and prepare them for additional math courses in the future." Their responses follow:

	Number	Percent
Yes	44	86
No	1	2
In Part	6	12
Totals	51	100

All of the teachers who made gains agreed that the improvement reported by students did take place. One beginning teacher attributed the improvement to additional teaching experience, two gave credit to summer-session courses, one thought the favorable change was due to better groups of students, and one said that a favorable change in his emotional state improved effectiveness in the classroom. All of the other respondents who made improvement said that the improvement was stimulated by information gained from the student-reaction reports.

Respondents who had made significant losses listed one of these reasons: (1) Less responsive student groups, (2) Worry because of illness at home, (3) Poor health, (4) Difficulty pupils had in distinguishing between effects that resulted from activities of student teachers and the effects that resulted from activities of the supervising teacher, (5) New teaching procedures did not bring expected results and (6) Cause for loss unknown.

Conclusion

The data presented in this chapter indicate that the feedback of information about student reactions can be used by many teachers as a means of improving effectiveness as seen by students.

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* This questionnaire was mailed with the final student-reaction report at the end of the school year. Some teachers had already departed for summer vacation. The nine who did not reply probably did not get their reports before returning to school in the fall—too late to meet the specified deadline.

CHAPTER V

WHAT IS THE RELATIONSHIP BETWEEN ACHIEVEMENT OF HIGH SCHOOL CHEMISTRY CLASSES AND RATINGS OF TEACHERS BY ADMINISTRATORS AND BY STUDENTS?

After citing a series of studies, Medley and Mitzel[1] conclude, "Previous research in the measurement of teacher effectiveness has tended to indicate that supervisory ratings of teacher effectiveness and measures of how much pupils are learning from the teacher have little in common."

The authors of **Who's A Good Teacher?**[2] say, "Even if pupil growth were measured accurately, there would still be the problem of determining how much could be ascribed to a particular teacher. Many influences shape pupil growth: the home, community, clubs and organizations, various media of communication, books, magazines, and libraries are but a few of these influences. Also, the pupil was subjected to the influence of other teachers in the past. The problem of disentangling these influences becomes difficult indeed. Though elaborate statistical and experimental methods have been developed, there is no one who can demonstrate a scientific way of making effective use of the pupil-gain criterion in measuring teacher effectiveness."

In spite of past failures to show a significant relationship between ratings and student gains, the investigator decided to try again, aiming at control of a greater number of variable factors than have previous investigators.

Procedures

During the first year of the study, student reactions were obtained from two classes taught by each of 162 chemistry teachers. Fifty teachers remained after eliminating: (a) teachers of very small classes, (b) teachers of very large classes, (c) teachers whose classes contained primarily seniors rather than juniors, and (d) teachers who received from students a rating of "average." Other things being equal, those who received high and those who received low ratings were retained.

During the second year of the study, starting in September and ending in June, the following tests and questionnaires were administered in two classes taught by each of 50 teachers:

1. Iowa Tests of Educational Development, Test 2, **General Background in Natural Sciences,** by Science Research Associates. The purpose in giving this test was to get an indication of the science background that each student brought to the course.

2. **Your Educational Plans,** High School Edition, prepared by S. A. Stouffer and published by Science Research Associates. Even though students were asked to answer all of the questions, the answers to only five questions (recorded in the form of a numerical rating) were used in the present study. These five questions related to (1) the student's choice of a vocation, (2) father's occupation, (3) plans for college, (4) extent of father's education, and (5) last year's grades earned by the students.

3. **Tests of Educational Ability,** Grades 9-12 by Science Research Associates. This test was used to get an indication of each student's academic ability.

4. **Cooperative Examination in High School Chemistry,** Form 1959, by the American Chemical Society and the National Science Teacher's Association. Time, Part I and Part II: 80 minutes. The objective exercises are of three types: (1) recall of information, (2) application of principles, and (3) quantitative application of principles. Reliability coefficients calculated by use of the Kuder-Richardson Formula 21 are for Part I—.91, for Part II—.91, and for both parts—.95.

5. **Student-opinion questionnaire,** for students in grades 7 through 12, prepared by the investigator and published by Western Michigan University. A copy of the questionnaire is shown in the appendix, pages 53 and 54. The reliability coefficients for the different questions range from .75 ± .06 to .85 ± .04 when chance-half averages for 50 classes (50 teachers), are correlated. These coefficients represent the reliability of chance-half groups which range in size from 12 to 20 students, the average being 14 students. For the whole classes numbering 28 students on the average, the coefficients range from .86 ± .04 to .92 ± .02. Also,

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[1] D. M. Medley and H. E. Mitzel, "Some Behavioral Correlates of Teacher Effectiveness." **Journal of Educational Psychology,** 50:239-46, December 1959.

[2] **Who's A Good Teacher?** American Association of School Administrators, Department of Classroom Teachers of the N.E.A., and the National School Boards Association, 1961, page 19.

two administrators of each teacher used this questionnaire when rating each teacher.

6. All students answered this question: **Has your attitude toward the study of chemistry changed any as a result of this course?** (Do you like chemistry more or less? Has your interest increased or decreased?) Underline your answer: My attitude is (a) much more favorable, (b) somewhat more favorable, (c) unchanged, (d) somewhat less favorable, (e) much less favorable.

Of the 50 teachers who agreed to provide all of the specified data, 38 did so. The number of students in their classes ranged from 12 to 30, the average being 21.

Reliability of Raw and Adjusted Chemistry Scores

When it is assumed that one teacher is superior in effectiveness to another, it is assumed that this superiority will manifest itself, except under unusual circumstances, with some consistency from class to class. That is to say, other things being equal, there should be considerable agreement between the test scores obtained by the different classes taught by the same teacher. The degree of agreement can be taken as an index to the reliability of the test results, as pointed out by Morsch and others'. If no agreement exists, a basis for comparing teachers does not exist.

How much agreement was found in this study between the means of two classes taught by each of 38 teachers? First, this question will be answered with reference to raw scores. When the mean raw scores received by two classes taught by each of 38 teachers were correlated, the result is r .56 ± .11. Naturally a teacher should get better results from a class of high ability, motivation and background than one low in these respects. Adjusted scores obtained after eliminating the influence of such irrelevant or corrupting factors should show even higher agreement than raw scores.

The following four steps were taken in the process of transforming raw scores into adjusted scores:

1. Identification of the measurable factors which may have given some teachers an advantage over others. These are the factors on which information was gathered by means of the testing program described previously. These factors are (1) background in natural sciences, (2) educational ability, (3) vocational plans, (4) father's occupation, (5) plans for college, (6) father's level of education, (7) last year's grades, and (8) the number of years each teacher had taught.

2. Elimination from further consideration any of these eight factors which did not relate significantly to the raw chemistry scores. This step reduced the list of eight factors to six. The factors eliminated because of low correlation (r .21 and r .30) are—number of years each teacher had taught and last year's grades. Each of the remaining six factors correlated with raw chemistry scores to the extent indicated by a coefficient between .44 and .66.

3. The use of the coefficient of multiple correlation (Wherry-Doolittle variable selection method) to determine the maximum correlation obtainable between raw chemistry scores and the six remaining factors'. R .73 resulted from the correlation of the mean raw chemistry scores of one class of each of 38 teachers with the six factors—one factor making no contribution (father's occupation). R .71 resulted from the correlation of the mean raw score of the other class of each of 38 teachers with the six factors—one factor making no contribution (father's occupation). This step reduced the six factors to five. One factor (father's occupation) was eliminated.

4. Use of multiple covariance to adjust raw chemistry test scores'. The regression-equation values were found for the entire sample of 1412 students in the two classes of each of the 38 teachers. The equation follows: Adjusted chemistry test score=.42 (education ability + 1.80 (background in natural sciences) –.85 (vocational plans) –.49 (plans for college) –.27 (father's level of education). This equation was applied to each of the mean scores for each class to arrive at the adjusted mean chemistry score for each class.

The pairs of adjusted scores (two classes per teacher) for 38 teachers were then correlated. The resulting coefficient is .68 ± .09. As indicated previously, the corresponding coefficient obtained by correlating raw scores is .56 ± .11.

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[1] J. E. Morsh, G. C. Burgess, and P. Smith, "Student Achievement as a Measure of Instructor Effectiveness." Journal of Educational Psychology, 47:79-88, February 1956.

[2] H. E. Garrett and R. S. Woodworth, Statistics in Psychology and Education. New York: Longmans, Green and Co., 1958, Chapter 16.

[3] J. E. Wert, C. O. Neidt and J. S. Ahmann, Statistical Methods. New York: Appleton-Century-Crofts, Inc., 1954, Chapter 18.

Correlation of Ratings with Raw and Adjusted Chemistry Scores

Table XXXIII below contains the ratings by students and administrators of eight teachers, along with adjusted test scores. Note that the classes of some of the highly rated teachers received high test scores while some received low scores. No positive relationship between ratings and test scores is discernable.

Note also the positive relationship between scores earned by the two classes of each teacher, a relationship to which reference was made previously.

TABLE XXXIII
ADJUSTED CHEMISTRY-TEST SCORES AND RATINGS RECEIVED BY EIGHT TEACHERS

Teacher	Ratings by	Adjusted Chemistry Test Score	Questions									
			1	2	3	4	5	6	7	8	9	10
1	Two Administrators		95	90	95	100	100	95	100	95	95	95
	Students Class 1	57.2	96	81	86	93	89	87	96	87	89	91
	Students Class 2	55.8	91	86	86	93	83	82	97	88	86	88
2	Two Administrators		95	90	90	95	90	90	80	90	95	90
	Students Class 1	58.5	88	73	80	83	69	76	73	82	71	73
	Students Class 2	51.8	89	73	81	79	78	69	74	82	76	74
3	Two Administrators		95	95	100	95	95	95	90	100	95	95
	Students Class 1	48.0	93	88	89	90	90	83	89	94	90	91
	Students Class 2	54.5	94	91	89	91	85	88	84	96	89	91
4	Two Administrators		90	80	80	80	85	80	85	75	85	80
	Students Class 1	50.3	92	67	77	83	73	74	89	68	80	75
	Students Class 2	51.5	93	78	77	80	83	80	86	73	81	76
5	Two Administrators		90	100	99	100	95	100	95	95	95	100
	Students Class 1	29.4	86	87	92	83	87	85	95	88	82	92
	Students Class 2	22.9	89	87	94	76	88	80	90	81	79	87
6	Two Administrators		85	80	95	85	90	85	80	90	95	85
	Students Class 1	22.4	89	69	84	83	79	77	71	79	84	83
	Students Class 2	30.1	92	69	87	84	83	76	76	84	86	85
7	Two Administrators		90	90	95	95	100	90	90	90	90	90
	Students Class 1	26.0	95	84	90	84	91	76	95	86	86	89
	Students Class 2	32.5	92	84	95	83	94	79	94	89	84	88
8	Two Administrators		85	85	85	80	85	80	70	80	80	80
	Students Class 1	28.3	93	79	92	88	87	78	90	84	84	84
	Students Class 2	33.2	92	71	88	86	84	83	89	79	79	79

Key to questions:

1. Knowledge
2. Explanations
3. Fairness
4. Discipline
5. Sympathy
6. Amount of learning
7. Interesting
8. Business like
9. Think
10. All-round ability

Interpret as follows: The students of teachers 1-4 made the highest average adjusted scores on the chemistry test administered to two classes taught by each of 38 teachers. The students of teachers 5-8 made the lowest scores.

The first horizontal column contains the average ratings of teacher "1" by two administrators on 10 questions. The second horizontal column contains the student-reaction averages for Teacher "1" (by the students in one of the two classes taught by Teacher "1"). The questionnaire used is shown on pages 53 and 54.

Table XXXIV below tells the story for all 38 teachers. The coefficients in this table range from –.27 to + .30. None is statistically significant. In order to be significant at the .01 level a coefficient derived from 38 cases would have to be at least as high as .42. Therefore it can be concluded that these data show no significant relationship between the achievement of students as measured by chemistry tests and ratings of teachers by students or by administrators.

TABLE XXXIV

COEFFICIENTS SHOWING THE CORRELATION BETWEEN CHEMISTRY SCORES AND RATINGS BY ADMINISTRATORS AND STUDENTS

Chemistry Scores	Ratings by	Chemistry Scores	Questions									
			1	2	3	4	5	6	7	8	9	10
Class I	Both Administrators	Raw	.01	.01	.03	.09	.04	.15	–.02	.03	.08	.08
		Adjusted	–.09	–.08	–.13	.05	–.17	–.05	.01	–.09	–.07	–.02
Class I	Students in Class I	Raw	–.02	.19	–.09	.11	–.14	.28	–.01	.18	.07	.08
		Adjusted	–.03	.03	–.22	.16	–.27	.16	–.07	.05	.01	–.06
Class II	Both Administrators	Raw	.21	.25	.03	.28	.24	.30	.17	.16	.20	.25
		Adjusted	.13	.15	–.06	.15	–.01	.02	.08	–.07	.03	.06
Class II	Students in Class II	Raw	.06	.24	–.08	–.01	–.02	.08	.03	.07	.05	.07
		Adjusted	–.04	.09	–.22	.18	–.20	.13	–.07	.05	.14	–.05

Interpret as follows: On question 1, the coefficients .01 was obtained when the 38 means of raw chemistry scores representing one class taught by each of 38 teachers were correlated with the combined ratings by two adminitrators of each of these 38 teachers.

The r. –.09 in the same cell resulted when the same scores and ratings were correlated—with one difference: adjusted chemistry scores were used instead of raw scores.

Relationship Between Students' Opinion of Teachers and Attitude Toward Chemistry

Most educators agree that one outcome of effective teaching should be improved attitudes toward the subject taught. If the result of chemistry teaching is dislike for and decreased interest in the subject, the teacher has failed to accomplish one important objective.

The importance of student attitudes toward the teacher and the subject taught is revealed in part by an investigation made by Corey and Beery[1], who concluded, "Disliking a high school teacher is enough to discourage pupils from electing to continue with the study of that subject in college . . . where both teacher and subject were well liked (292 cases) there were 190 instances (65 percent) of electing to continue with the subject in college. When neither the subject nor teacher was liked (82 cases) only 4 students (5 percent) elected to continue the subject in college."

In the present study students' opinions of teachers' all-round ability were correlated with the change they said took place in attitude toward chemistry. The resulting correlation coefficient is .86 ± .04*. This indicates that under highly regarded teachers, student liking for and interest in chemistry increased. Under the teacher held in low regard by students their liking for and interest in chemistry decreased.

[1] Stephen M. Corey and G. S. Beery, "The Effect of Teacher Popularity Upon Attitudes Toward School Subjects." **Journal of Educational Psychology**, 29:668-669, December 1938.

* Students' attitude toward chemistry was obtained by means of the question stated on page 45. Their opinion of a teacher's all-round ability was obtained by means of question 10 in the questionnaire shown in the appendix, page 53. The mean rating by the students in each of 38 chemistry classes on one factor was correlated with the mean rating on the other factor. The average number of students per class is 21.

Summary of Findings and Conclusions

The findings reported are summarized in Table XXXV below. These data support the following conclusions:

1. The degree of agreement between the adjusted chemistry test scores received by the two classes of each teacher shows that fair success was attained in measuring student gains in the form of knowledge of chemistry (factor 2 in table below).

2. Student gains in the form of knowledge of chemistry are not positively related to ratings of teachers by either administrators or students (factors 4 and 5 in table below).

3. Student gains in the form of increased liking for and interest in the subject of chemistry are positively related to ratings by students. That is, students' attitude toward the subject tended to become more favorable under highly regarded teachers and less favorable under teachers held in low regard (factor 3 in table below).

TABLE XXXV

PREVIOUSLY REPORTED CORRELATION COEFFICIENTS OBTAINED FROM DATA CONCERNING 38 CHEMISTRY TEACHERS

Factors Correlated	Coefficients
1. **Raw chemistry scores with raw chemistry scores.** Mean test score received by one class taught by each of 38 teachers with mean score of another class taught by each of same 38 teachers.	.56 ± .11
2. **Adjusted chemistry scores with adjusted chemistry scores.** Mean score received by one class taught by each of 38 teachers with mean score of another class taught by each of same 38 teachers.	.68 ± .09
3. **Rating by students of teacher's all-round ability with students' attitude toward chemistry.** Mean rating by students on all-round ability of each of 38 teachers with mean rating by students on attitude toward chemistry in each class taught by same teachers.	.86 ± .04
4. **Adjusted chemistry scores with ratings by students.** Mean of ratings by students of each of 38 teachers on series of questions with mean of chemistry score received by one class taught by each of same teachers.	−.27 to + .18
5. **Adjusted chemistry scores with ratings by administrators.** Mean rating of each of 38 teachers by two administrators on series of questions with mean chemistry score received by a class taught by each of the same teachers.	−.17 to + .15
6. **Ratings by students in one class with ratings by students in another class.** Mean rating by students in one class on ten questions concerning each of 38 teachers with mean of ratings by another class taught by each of same teachers.	.68 ± .09 to .88 ± .04
7. **Ratings by one administrator with ratings by another administrator.** Ratings by an administrator on ten questions concerning each of 38 teachers with ratings by another administrator of each of same teachers.	.49 ± .12 to .77 ± .07
8. **Ratings by administrators with ratings by students.** Mean of ratings by two administrators on ten questions concerning each of 38 teachers with mean of ratings by students in one class taught by each of the same teachers.	.59 ± .10 to .78 ± .06

The number of students in the chemistry classes of these 38 teachers ranged from 12 to 30, the average being 21. The data under points 6, 7 and 8 were taken from Chapter I.

CONCLUSIONS AND RECOMMENDATIONS

The data presented in this report justify the following conclusions:

1. The image of a teacher held by students usually has much in common with the image held by administrators and by parents. This is so because administrators' and parents' opinions of a teacher are based to a great extent on student reactions to the teacher. It is therefore not surprising that ratings by high-school students and by administrators reveal a substantial amount of agreement on most of the items in the questionnaire used in this study.

2. The image one group of students has of a teacher is usually very similar to that held by other groups of students. Almost without exception this is true of the several different groups of high-school students currently studying the same subject on the same grade level under the same teacher. Also, the image students have of a teacher at the end of their association tends to persist with little change into future years.

3. Even though no significant correlation was found between ratings by high-school students (or administrators) and student gains in the form of subject matter learned, high correlation was found between teacher prestige with students and development of interest in and liking for the subject of chemistry.

4. A large percentage of high-school teachers can use information gained from student-reaction feedback as a means of improving their image with students.

The investigator makes the following recommendations:

1. Student-reaction reports, like those used in this study, should be made available to all teachers of students in grades 7-12 who desire them. Since most teachers lack the time and information needed to prepare their own reports and arrive at valid interpretations, the proposed service should be rendered as a field service by colleges and universities. Each teacher's report should be confidential and made available to no one but the teacher. Because of the potential of such reports for the improvement of instruction, the expense of the service could justifiably be assumed by school boards of education.

2. The proposed service to teachers should include preparation of a recommendation, based on student reactions, for any teacher who requests one. Such a recommendation should be made a part of the teacher's credentials in the office of teacher placement at his alma mater.

3. Student-reaction reports should be recognized as one source of information concerning teacher effectiveness in schools which have adopted merit salary schedules. This is not a recommendation that merit salary schedules be adopted; it is a recommendation that schools which do adopt merit salary schedules welcome student-reaction reports, for teachers in grades 7-12, as one of the several sources of information on merit.

This recommendation is based on the following, previously-reported conclusions: (1) Most administrators agree that students are in a better position than administrators to make reliable judgments concerning the degree to which a teacher exhibits qualities like ability to explain clearly, sense of humor, sympathetic understanding, fairness, friendliness, and ability to stimulate interest; (2) Student-reactions are statistically more reliable than administrators' ratings on the kind of questions contained in the questionnaire used in this study; and (3) Parents agree that their opinions of teachers are based to a great extent on student-reactions to teachers.

4. Student-reaction reports should be used by teacher-education institutions as a means of identifying beginning teachers in grades 7-12 who are in need of special assistance.

Most teacher-education institutions would like to offer aid to beginning teachers who are in need of aid. However, most cannot afford an adequate number of field representatives with sufficient time to diagnose difficulties being experienced by beginning teachers and to offer remedial help. It is here proposed that student-reaction reports be used as a means of identifying beginners in need of help. This would permit the representatives of the teacher-education institutions to concentrate available time where it is most needed.

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APPENDIX

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Student Opinion Questionnaire

Please answer the following questions honestly and frankly. Do not give your name. To encourage you to be frank, your regular teacher should be absent from the classroom while these questions are being answered. Neither your teacher nor anyone else at your school will ever see your answers.

The person who is temporarily in charge of your class will, during this period, collect all reports and seal them in an envelope addressed to Western Michigan University. Your teacher will receive from the university a summary of the answers by the students in your class. The university will mail this summary to no one except your teacher unless requested to do so by your teacher.

After completing this report, sit quietly or study until all students have completed their reports. There should be no talking.

Underline your answer to each question on this page. Write your answers to questions 11 and 12 on the other side of this page.

WHAT IS YOUR OPINION CONCERNING:

1. **THE KNOWLEDGE THIS TEACHER HAS OF THE SUBJECT TAUGHT?**
   (Has he a thorough knowledge and understanding of his teaching field?)
   Below Average Average Good Very Good The Very Best
2. **THE ABILITY OF THIS TEACHER TO EXPLAIN CLEARLY?**
   (Are assignments and explanations clear and definite?)
   Below Average Average Good Very Good The Very Best
3. **THIS TEACHER'S FAIRNESS IN DEALING WITH STUDENTS?**
   (Is he fair and impartial in treatment of all students?)
   Below Average Average Good Very Good The Very Best
4. **THE ABILITY OF THIS TEACHER TO MAINTAIN GOOD DISCIPLINE?**
   (Does he keep good control of the class without being harsh? Is he firm but fair?)
   Below Average Average Good Very Good The Very Best
5. **THE SYMPATHETIC UNDERSTANDING SHOWN BY THIS TEACHER?**
   (Is he patient, friendly, considerate, and helpful?)
   Below Average Average Good Very Good The Very Best
6. **THE AMOUNT STUDENTS ARE LEARNING IN THIS CLASS?**
   (Are students encouraged to do their best? Are students working hard enough? Are most students getting a good foundation for future study of this subject?)
   Below Average Average Good Very Good The Very Best
7. **THE ABILITY THIS TEACHER HAS TO MAKE CLASSES LIVELY AND INTERESTING?**
   (Does he show enthusiasm and a sense of humor? Does he vary teaching procedures? Does he provide for individual differences?)
   Below Average Average Good Very Good The Very Best
8. **THE ABILITY OF THIS TEACHER TO GET THINGS DONE IN AN EFFICIENT AND BUSINESS-LIKE MANNER?**
   (Are plans well made? Is little time wasted?)
   Below Average Average Good Very Good The Very Best
9. **THE SKILL THIS TEACHER HAS TO GET STUDENTS TO THINK FOR THEMSELVES?**
   (Are students' ideas and opinions worth something in this class? Do students help decide how to solve problems and how to get their work done? Do they get at the real reasons why certain things happen?)
   Below Average Average Good Very Good The Very Best
10. **THE GENERAL (ALL-ROUND) TEACHING ABILITY OF THIS TEACHER?**
    (All factors considered, how close does this teacher come to your ideal?)
    Below Average Average Good Very Good The Very Best

(over)

11. **PLEASE NAME ONE OR TWO THINGS THAT YOU ESPECIALLY LIKE ABOUT THIS CLASS OR TEACHER. (If you do not promptly think of a "like," check the question on the reverse side about which you expressed the most favorable opinion. Comment on the reason for this favorable opinion.)**

12. **PLEASE NAME ONE OR TWO THINGS THAT YOU DISLIKE ABOUT THIS CLASS OR TEACHER. (If you do not promptly think of a "dislike," check the question on the reverse side about which you expressed the least favorable opinion. Comment on the reason for this unfavorable opinion.)**

Student-Opinion Questionnaire

Please answer the following questions honestly and frankly. Do not give your name. To encourage you to be frank, your regular teacher should be absent from the classroom while these questions are being answered. Neither your teacher nor anyone else at your school will ever see your answers.

The person who is temporarily in charge of your class will, during this period, collect all reports and seal them in an envelope addressed to Western Michigan University. Your teacher will receive from the university a summary of the answers by the students in your class. The university will mail this summary to no one except your teacher unless requested to do so by your teacher.

After completing this report, sit quietly or study until all students have completed their reports. There should be no talking.

Underline your answer to each question on this page. Write your answers to questions 11 and 12 on the other side of this page.

WHAT IS YOUR OPINION CONCERNING:

1. **THE KNOWLEDGE THIS TEACHER HAS OF THE SUBJECT TAUGHT?**
   (Has he a thorough knowledge and understanding of his teaching field?)
   Excellent / Good / Average / Below Av.

2. **THE ABILITY OF THIS TEACHER TO EXPLAIN CLEARLY?**
   (Are assignments and explanations clear and definite?)
   Excellent / Good / Average / Below Av.

3. **THIS TEACHER'S FAIRNESS IN DEALING WITH STUDENTS?**
   (Is he fair and impartial in treatment of all students?)
   Excellent / Good / Average / Below Av.

4. **THE ABILITY OF THIS TEACHER TO MAINTAIN GOOD DISCIPLINE?**
   (Does he keep good control of the class without being harsh? Is he firm but fair?)
   Excellent / Good / Average / Below Av.

5. **THE SYMPATHETIC UNDERSTANDING SHOWN BY THIS TEACHER?**
   (Is he patient, friendly, considerate, and helpful?)
   Excellent / Good / Average / Below Av.

6. **THE AMOUNT STUDENTS ARE LEARNING IN THIS CLASS?**
   (Are students encouraged to do their best? Are students working hard enough? Are most students getting a good foundation for future study of this subject?)
   Excellent / Good / Average / Below Av.

7. **THE ABILITY THIS TEACHER HAS TO MAKE CLASSES LIVELY AND INTERESTING?**
   (Does he show enthusiasm and a sense of humor? Does he vary teaching procedures? Does he provide for individual differences?)
   Excellent / Good / Average / Below Av.

8. **THE ABILITY OF THIS TEACHER TO GET THINGS DONE IN AN EFFICIENT AND BUSINESS-LIKE MANNER?**
   (Are plans well made? Is little time wasted?)
   Excellent / Good / Average / Below Av.

9. **THE SKILL THIS TEACHER HAS TO GET STUDENTS TO THINK FOR THEMSELVES?**
   (Are students' ideas and opinions worth something in this class? Do students help decide how to solve problems and how to get their work done? Do they get at the real reasons why certain things happen?)
   Excellent / Good / Average / Below Av.

10. **THE GENERAL (ALL-ROUND) TEACHING ABILITY OF THIS TEACHER?**
    (All factors considered, how close does this teacher come to your ideal?)
    Excellent / Good / Average / Below Av.

11. **PLEASE NAME ONE OR TWO THINGS THAT YOU ESPECIALLY LIKE ABOUT THIS CLASS OR TEACHER. (If you do not promptly think of a "like," check the question on the reverse side about which you expressed the most favorable opinion. Comment on the reason for this favorable opinion.)**

12. **PLEASE NAME ONE OR TWO THINGS THAT YOU DISLIKE ABOUT THIS CLASS OR TEACHER. (If you do not promptly think of a "dislike," check the question on the reverse side about which you expressed the least favorable opinion. Comment on the reason for this unfavorable opinion.)**

Questions for Pupils in Grades Four, Five and Six

Your answers to these questions will help your teacher. Do not write your name on this paper. After reading each question, choose the answer that fits your teacher best. Place a line under that answer. Your teacher will not see your answers. A report will be made for your teacher at Western Michigan University.

WHAT IS YOUR OPINION—

1. **HOW WELL DOES THIS TEACHER EXPLAIN THINGS?**
   (How clearly can this teacher explain things? Does this teacher make things easy to understand?)

   Below Average **Average** **Good** **Very Good** **The Best**

2. **HOW KIND AND FRIENDLY IS THIS TEACHER TO YOU?**
   (Is this teacher polite and understanding?)

   Below Average **Average** **Good** **Very Good** **The Best**

3. **HOW FAIR IS THIS TEACHER TO YOU?**
   (Does this teacher treat all pupils the same? Is this teacher fair when deciding on marks or grades and other things?)

   Below Average **Average** **Good** **Very Good** **The Best**

4. **HOW INTERESTING IS THE WORK IN THIS CLASS TO YOU?**
   (Do you enjoy learning from this teacher?)

   Below Average **Average** **Good** **Very Good** **The Best**

5. **HOW MUCH ARE YOU LEARNING IN THIS CLASS?**
   (Do you feel like doing your best? Do you work hard?)

   Below Average **Average** **Good** **Very Good** **The Best**

6. **HOW WELL DOES THIS TEACHER KEEP ORDER IN THIS CLASS?**
   (Do pupils behave well? Do pupils mind the teacher well?)

   Below Average **Average** **Good** **Very Good** **The Best**

7. **PLEASE NAME ONE THING THAT YOU LIKE MOST ABOUT THIS TEACHER.**

8. **PLEASE NAME ONE THING YOU DON'T LIKE ABOUT THIS TEACHER.**

Ability of Pupils in Grades 4, 5 and 6 to Report Reliably Their Reactions to Teachers

The main question considered in Chapter II is—to what extent are parents' judgments of teachers based on student reactions? An incidental problem is stated above—the ability of pupils in grades 4, 5 and 6 to report reliably their reactions to teachers. Since only 14 teachers of children in grades 4, 5 and 6 participated in the present study, the data on this page in Table XXXVI must be viewed with reservations.

The data in Table XXXVI are based on answers to the questionnaire shown on the previous page by pupils in the classrooms of 14 teachers. It will be observed that the chance-half reliability coefficients range from .84 ± .16 to .88 ± .06.

The reliability coefficients for the whole classes (20 to 30 students, the average being 25), as determined by the Spearman Brown prophecy formula, range from .78 ± .10 to .94 ± .03.

The intercorrelation coefficients in this table are lower than the reliability coefficients on some questions and on others they are not. This indicates that elementary-school pupils are more subject to the influence of halo than are high-school students (see page 16).

TABLE XXXVI

CORRELATION COEFFICIENTS (ACCOMPANIED BY INTERCORRELATION COEFFICIENTS) SHOWING AGREEMENT AMONG PUPILS IN GRADES 4, 5 AND 6

Question	Questions 1	2	3	4	5	6
1	.89					
2	.71 .68	.64				
3	.72 .87	.76 .83	.84			
4	.82 .87	.76 .76	.80 .91	.88		
5	.67 .73	.50 .66	.63 .78	.59 .78	.80	
6	.49 .70	.51 .61	.71 .70	.71 .63	.39 .71	.69

Key to questions:

1. Ability to explain
2. Friendly
3. Fair
4. Interesting
5. Amount learning
6. Ability to keep order